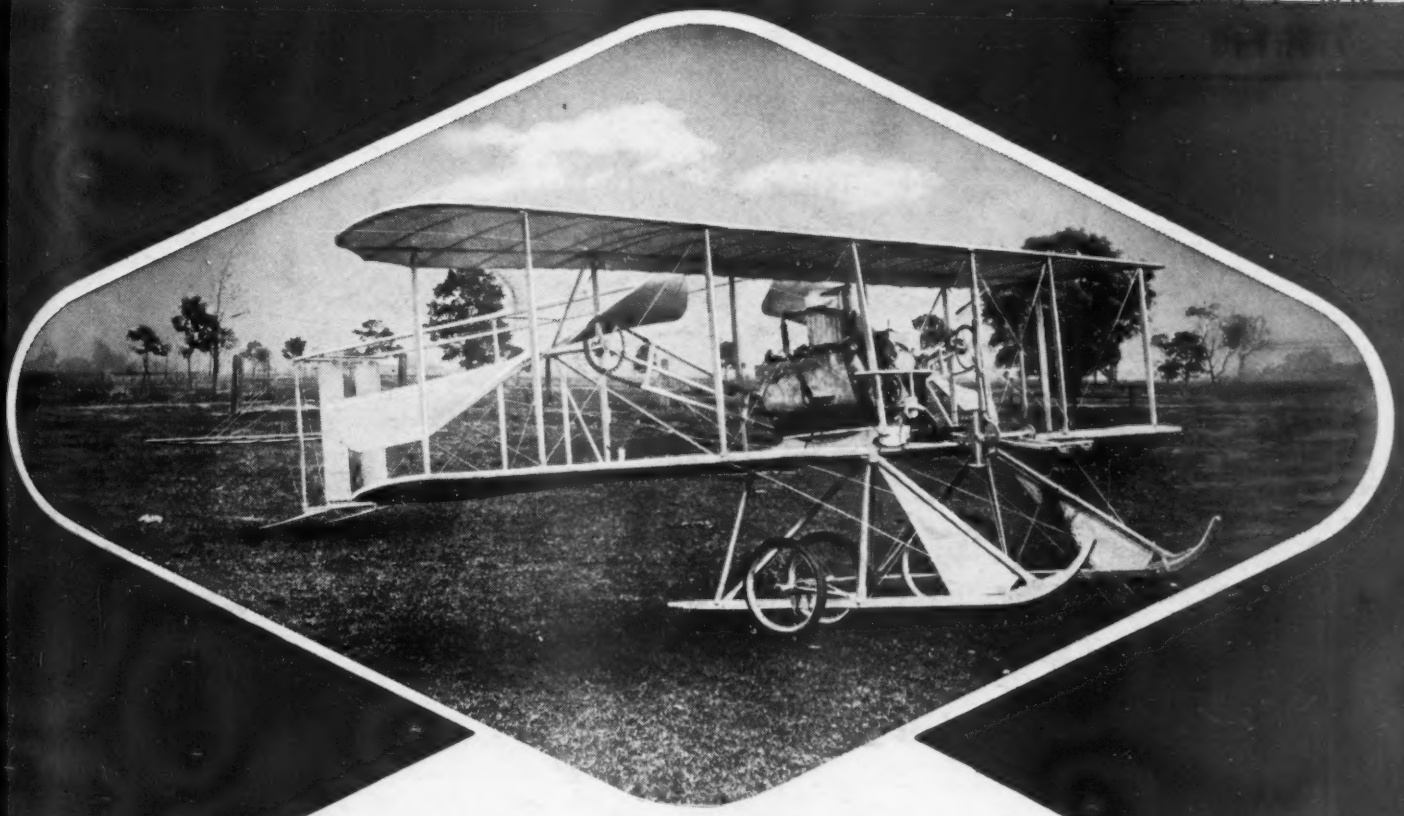
AVIATION WEEK

A McGRAW-HILL PUBLICATION

MAY 3, 1948



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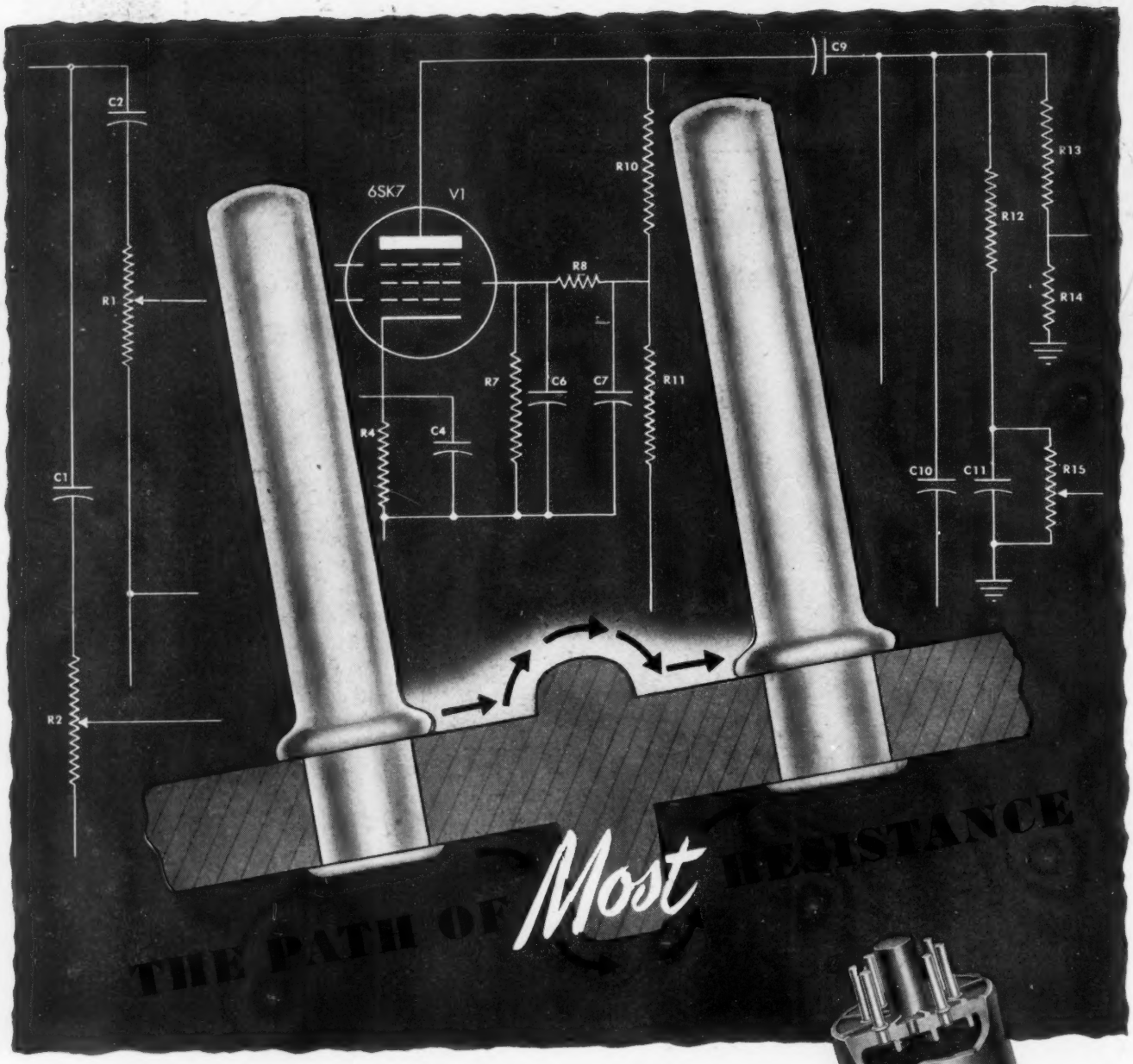

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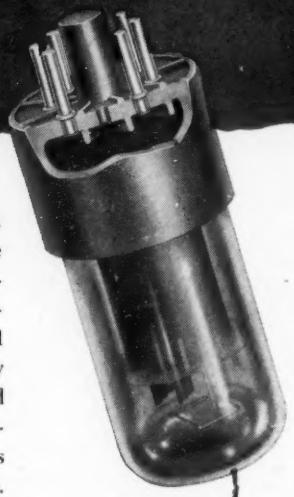

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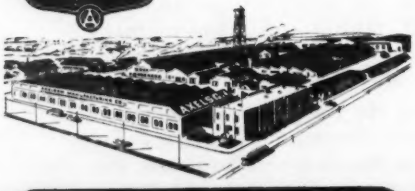

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AIRCRAFT DIVISION

6160 South Boyle Ave.
Los Angeles 11, Cal.

Vol. 48 No. 17 (18)

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Built on a Bedford "Q.L.4." (four-wheel drive) chassis with high ground clearance which is capable of rapid movement over rough or soft ground. It carries 40 gallons of "PYRENE" Foam Compound and 500 gallons of water which, through the medium of "PYRENE" Mechanical Foam Generators, produce 2,500 gallons of foam per minute for approximately 1 1/3rd minutes. In addition, this vehicle is fitted with 6-50 lb. CO_2 gas cylinders connected through a manifold to two hose reels, terminating in fibre gas distributors. The output is 1,600 cu. ft. of CO_2 gas per minute for approximately 1 1/3rd minutes.

This Crash Tender is designed to provide maximum visibility, ease of control and rapid action. The Coventry-Climax Fire Pump fitted within the Tender delivers 380/400 G.P.M. of water-Foam Compound solution at 150 lbs. pressure per square inch. This pump can be brought into action en route to the scene of the fire enabling Foam to be produced as soon as the hoses are run out.

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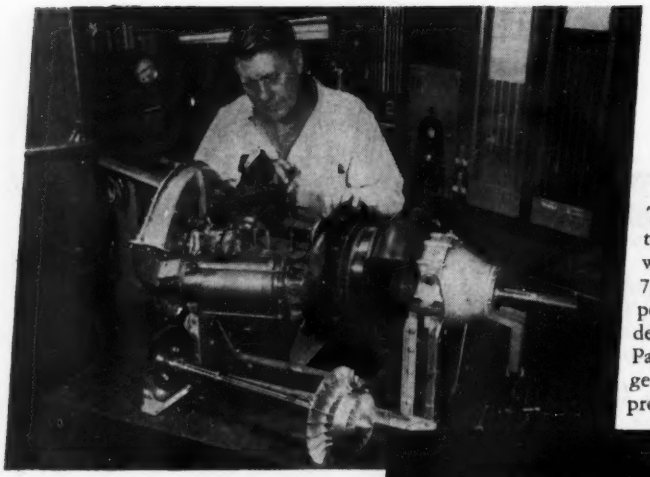
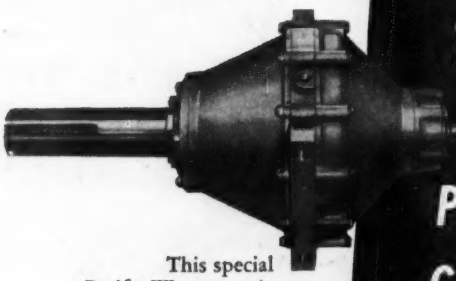


This Boeing Model 502 turbo-prop gas turbine, which weighs only 7/10ths of a pound per horsepower delivered, uses a Pacific-Western built gear box for the propeller drive.



This special Pacific-Western unit reduces turbine-shaft speed of approximately 36,000 rpm to normal propeller speed.

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NEWS DIGEST

DOMESTIC

Irving B. Babcock resigned as president of Avco Manufacturing Corp. on physician's advice. He will continue as a board member. Victor Emanuel, board chairman, will assume the duties of president.

Naval Aviation will celebrate its 37th anniversary May 8 commemorating the signing of the first contract for naval aircraft, two Curtis hydroplanes, on May 8, 1911.

Air Line Pilots Association's membership reportedly has endorsed a proposal to respect all picket lines established by pilots and mechanics striking against National Airlines. If implemented, the policy could cripple all scheduled airline operations at Miami, Newark, New Orleans and other points served by NAL, which now reports almost complete restoration of service despite walkout.

United Air Lines and Matson Navigation Co. have signed a pact to stimulate combination sea-air travel between the West Coast and Hawaii. Both companies will sell tickets providing for one-way passage via plane and one-way via ship.

Post Office Department has authorized civilian air mail service between the U. S. and the American and British zones in Germany effective May 1.

FINANCIAL

Solar Aircraft Co. declared year-end dividend of 15 cents per share.

Philippine Air Lines reported gross income of $8,975,368 for 1947, or 97 percent more than the 1946 total of $4,410,335.

International Detrola Corp. announced net profit for 1947 of $1,379,139 or $1.13 per share on sales totaling $71,682,179.65.

Fairchild Camera and Instrument Corp. reports net income for 1947 of $466,472 or $1.38 per share on sales amounting to $8,023,000.

FOREIGN

KLM last week was seriously considering abandonment of its services into Berlin because of Russian hindrances.

Pan American Airways has reduced fares up to 20 percent on Far East routes from Manila to Hongkong and Shanghai.

Norway will receive its first jet aircraft from de Havilland, Ltd. Four Vampire III fighters will be delivered to the Royal Norwegian Air Force within the next two months.

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Janitrol S-200 heater widely used for converting present DC-3 heating systems.

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Vol. 48, No. 17

AVIATION WEEK

May 3, 1948

New Rules Set For Aircraft Procurement

Government prepares regulations to take "plus" out of cost-plus-fixed-fee contracts; unallowable items listed.

Aircraft procurement will be run under a new set of rules aimed at taking the "plus" out of cost plus contracts. These rules are aimed at eliminating borderline costs not profits.

New rules are being readied by all government agencies concerned and are due to be presented to industry shortly. Although all military contracts will be included under the new rules, aircraft procurement funds now being rushed through the Senate will probably be the first directly concerned.

▶**Protect Investments**—Under the new policy, the military will protect the contractor's investment by paying his tooling costs as soon as the machinery is approved for the job. In return, the services will demand more stringent cost accounting, more policing of costs by inspectors in the plant, periodic price renegotiation, and elimination of charges not specifically involved in production of a military order.

Suppose a firm is negotiating for a munitions order. Under the old system it would sign up for so much production, at so much per item. It would tool up and run in the red until tooling costs had been paid off through production and deliveries.

▶**Tool Costs**—In the future firms will make a contract for a target production schedule, buy the tools, and get tool costs back as soon as they are ok'd by the procurement officer. Then firms will be paid for production as it comes off the line, but they won't have to worry about amortizing machines. The order can be large or small, but firms will still make a profit. They are not required to do this, but unless they can see a long time use, both military and civilian, for tools, it will save trouble and worry to let the government buy them and have the manufacturers maintain them. If they do buy the tools on their own account, the government still will pay that pro-rata share of their useful life devoted to government production.

To the military, your unit prices will be lower. Not only because firms are not charging for government-owned tools, but because there are a lot of things now that they can't charge off to the government like they once could.

Fifteen chapters of new negotiated contract regulations, being drafted jointly by the three services and the Comptroller General, will spell out more concretely than ever before just what prime and subcontractors can and cannot charge off as costs. Motive for the redraft of the regulations is the new military procurement law passed during the last session of Congress. Under the new law the military is allowed to stray away from the old system of public auctioning of all contracts and now can negotiate 17 classes of military orders. The new look in negotiated contracts should be out in about a month.

▶**Can'ts Listed**—Most telling of the new regulations is Section 7, "contract clauses and forms." As a part of this Section the services have laid out a list of "can's" and "can't's" for cost accounting. Listing of the allowable and unallowable charges will speed up contract negotiations and cut down disallowances by the Government Accounting office, according to the planners.

In the past, cost-plus contracts were drawn up from scratch between procurement officers and the contractor, then submitted to General Accounting Office for approval. In many instances the deals were thrown out at the last minute because of "excess water" in the "plus" side of the contract. Now negotiations will start off with much of the "water" automatically ruled out.

Here are the "can't's" as taken from the draft version of the section on costs.

▶**Unallowable Costs:** Amounts representing the following will not be allowed as elements of cost under this contract.

1. Advertising: This will include all expenses of advertising the contractor's product, service, or name.
2. Interest on invested or borrowed capital.
3. Fees, commissions, bonuses, and special premiums paid in connection with negotiations for a procurement contract.
4. Entertainment expenses.
5. Donations, dues, and memberships unless specifically provided for in this contract.
6. Expenses, maintenance and depreciation of excess facilities other than reasonable stand-by facilities.
7. Fines and penalties.
8. Losses on other contracts.
9. Losses from sale or exchange of capital assets: The meaning of "capital assets" intended here will conform to the definition generally used in commercial accounting practices and will include such as the following: business property subject to depreciation or amortization, real property, stocks, bonds, securities.
10. Expenses arising from strikes and lock-outs excepting those incurred items specifically determined to be allowable by the contracting officer.
11. Increases in reserve accounts for contingencies.
12. Premiums for life insurance on the lives of officers of a corporation, or

Knudsen Dies

William S. Knudsen, wartime director of the Air Force aircraft production program and former president of General Motors Corp. died at his home on Grosse Ile, Mich. after an 18-months illness. A Danish immigrant, Knudson worked his way from a $10 a week mechanic to GM head and was named director of the Office of Production Management by President Roosevelt in January, 1941.

He was later commissioned Lieut. General and traveled more than 250,000 miles to break production bottlenecks and expand U. S. aircraft production to its war-winning size. He left the Army in June, 1945 and returned to Detroit broken in health. Maj. Gen. Oliver P. Echols, (Ret). Aircraft Industries Association president, stated: "This modest and inspiring American deserves a major portion of the credit for America's victory in the air war in World War II."

owners and persons financially interested in the contractor's business, whether or not the above persons are directly or indirectly designated as beneficiaries.

13. Federal and state income and excess profits tax.

14. Bond discount or financing charges.

15. Taxes and expenses on issues and transfers of capital stock and bonds.

16. Bad debt losses or charges to reserves therefor.

17. Inter-company profits: Such profits will be eliminated in transactions between parent and wholly-owned subsidiaries unless otherwise provided for in this contract (nominally, qualifying interests will be ignored in determining "wholly-owned subsidiaries"). Intercompany profits between parent and subsidiaries (other than wholly-owned) will be eliminated only when required by the contracting officer.

18. Intra-company profits: As used herein, intra-company profits means profits between divisions, branches, or components of a unitary organization.

► **Allowable Costs**—Allowable under the new-style contract would be direct and indirect manufacturing costs, administrative, selling, and distribution expenses, which are reflected by the contractor's books and records as "incurred and reasonably necessary." Determination of allowability will be based on generally accepted commercial accounting principles, consistently applied in the contractor's own accepted accounting system.

The new regulations set out 18 examples of allowable costs: (1) normal depreciation of fixed assets; (2) depletion of natural resources; (3) bank service charges; (4) employees' group pension and retirement expenses (when specifically approved by the contracting officers); (5) employees' welfare expenses (6) employees' vacation pay (if established policy) (7) royalties and license fees (8) legal, accounting and other professional fees for services rendered, unless listed as unallowable or for matters arising in fiscal periods not covered by the contract (9) self-insurance programs (when approved); (10) uninsured losses (when approved);

(11) Premiums for performance bonds; (12) necessary management expenses such as corporate directors' and executive committee fees, expenses of stockholders' meetings and annual reports; (13) amortization of patents, rights, designs and drawings (if related to the contract); (14) amortization of dies, patterns and special tools; (15) "reasonable" salaries or other compensation to partners, proprietors and corporate officers; (16) production engineering expenses, including compensation of engineers, draftsmen and other technicians and overhead of engineering department; (17) research and development expenses (if provided for in contract); (18) expenses incurred in anticipation of the contract (if specified in the contract).

► **Revised Methods**—Methods of determining what constitutes a prime or a subcontractor are also being revised. The new methods, although not yet in final form, will base the determination on the degree of "bottleneck importance" rather than end product, as has been the case. The object here is to bring the subcontractor under the same policing as applies to the prime contractor, and to facilitate the removal of restrictions to the prime contractor's production speed.

Price renegotiation procedures, which in the past were not as readily applied to subcontractors as they were to the prime producers, are also being expanded. Procurement officers drafting the new regulations make it plain that they intend to carry their increased policing activities in procurement beyond big industry.

There are no jokers in the new regulations. There are no provisions which would allow a contractor to establish a "sinking fund" with government money with which to buy back government-owned tools in his plant. He can buy them back, or rent them when they are idle, but he has to use his own money. If he rents the tools in his plant for civilian production he will pay a fair rental to the government.

If there is a war, the new regulations will have eased the shock of the resulting complete restrictions on the economy. If there isn't a war after all, contractors will have had more security in charges paid off at the outset of the contract, the military says.

New British Jet

First test flight of the Gloster E.1/44 "Ace" jet fighter has been completed successfully in England. Flights are being continued as weather permits. The thin-winged fighter is powered by a single Rolls-Royce Nene Turbojet engine of 5000 lb. static thrust. It will not be placed into production.

The craft features twin air intakes on either side of the fuselage, a tricycle landing gear and an appearance similar to the original Gloster E28/39, first British jet plane to fly. It will carry a 2,000 lb. bomb load and is expected to have a top speed of about 600 mph.

February Shipments Total 613 Planes

Shipment of 613 new planes in February, by manufacturers, included 452 personal planes, 14 transports and 147 military planes, showing a slight increase over January shipments of 607 planes.

The Department of Commerce summary and comparative figures showed however that the total shipments for the first two months of 1948 were much below those of the first two months of 1947, (1220 planes against 4290.)

Analysis indicated that the personal plane slump was responsible for most of the drop, and that actually the employment level in aircraft plants was only 8 per cent lower in Feb. 1948 than in Feb. 1947.

Combined airframe weight of 581,000 lb. was reported for the 466 civil planes shipped in Feb. 1948, valued at $5,100,000. Increase of 11 per cent in value, and 23 per cent in weight over the preceding month's figures was shown.

Aircraft engines shipped in February included 1007 civil engines with value of $3,600,000 and 355 military engines with value of $17,000,000. Gains were shown in both classifications over January shipments which were 779 civil engines with $3,100,000 value and 287 military engines with $15,200,000 value.

Exports of complete aircraft and engines for February amounted to 190 planes and 375 engines with total value of $5,000,000 as compared to January totals of 117 planes, 295 engines, and $4,400,000 value.

Employment in aircraft plants was up slightly to 148,205 in February from 147,588 in January, while engine plant employment showed an almost negligible increase to 32,934 from 32,921. Compared to February 1947 employment figures of 161,612 for aircraft plants, and 34,642 for engine plants, the February 1948 totals showed a marked decrease, reflecting the smaller production figures.

Foreign Entries Accepted

Bendix Transcontinental Air Race this year will accept foreign civilian entries for the first time.

L. E. Therkelsen, chairman of the Bendix Race Committee, made the announcement at Los Angeles last week.

To qualify, foreign planes and pilots will be required to certify to National Aeronautic Association their civilian status and absence of government sponsorship.

Start of the Bendix has been set for Sept. 4 for both reciprocating and jet classes.

B-29s, pulled from storage, roll off reconditioning line at Boeing Wichita plant.

Congress Scorns "Mothball" Plan

Forrestal tries compromise with 70-Group advocates by proposing to enlarge Air Force with stored craft.

The fight for air power continued on Capitol Hill last week with Air Force officials standing pat for their 70-Group program while Defense Secretary James V. Forrestal upped the Truman administration ante to 66 Groups.

Forrestal's proposal was a vain attempt to appease rising tide of Congressional criticism of administration effort to limit the Air Force to 55 Groups and $1,483,100,000 in procurement funds. He urged creation of 10 new bomber groups by taking Boeing B-29s out of storage and adding another fighter group from World War II surplus planes. Forrestal admitted that the Air Force did not yet know whether the storage planes would be serviceable. His proposal did not add any procurement funds to previous Administration offers.

▶ **Mothball Air Force**—The 66-Group proposal was derided by Congressional advocates of air power as this country's first line of defense as a "mothball" air force and indications were that the Senate would endorse the previous stand of the House in voting a full 70-Group program and $2,295,000,000 for new plane procurement.

In group numbers, the 66-group program would involve only two less light bomber groups and two less troop carrier groups than the 70-Group program.

In testimony before the Senate Appropriation Committee, Forrestal rested his case for the 66-Group program on the over-all economic capacity of the country. A national defense program involving more than the 66 Air Groups and augmented ground and naval forces "for balance", he cautioned Congressmen, would necessitate placing the country on a war footing with priority and allocation systems. "There is no question of the military desirability of the 70-Group Air Force, nor of the relative strengths which would put the Army and Navy in a state of comparable readiness", Forrestal qualified.

▶ **Cost Figures Change**—Forrestal, who, a few weeks back dropped a scare into Congress' lap by calculating that a 70-Group Air Force with increases in ground and sea forces "for necessary balance" would mean an $18,000,000,000-a-year addition to the present national defense budget of approximately $10,000,000,000-a-year, trimmed his estimated down to $9,000,000,000. This would mean a national defense budget of $22,400,000,000 annually by 1951—the target date for realization of the 70-Group program.

The major item in the Forrestal $22,400,000,000 "balanced" program—80,000-ton carriers for strategic bombing—is being poorly received in Congress. Last week, Sen. Owen Brewster (R., Me.) and Rept. Carl Hinshaw (R., Calif.), chairman and vice chairman, respectively, of the joint Congressional Aviation policy board, tabbed the proposed carriers "sitting ducks" for guided missiles expected to play an important role in any future war, and objected to the greater expense involved for support forces than would be involved in a land base with air power of comparable striking force.

▶ **Navy Dominant**—Under the Forrestal program, the Navy would emerge as the dominant service. The 1951 budget of $22,400,000,000 would be divided: Navy, $7,900,000,000; Air Force, $7,300,000,000; Army, $7,200,000,000. The 1949 fiscal year Air Force budget would be $5,442,000,000 in cash and contract authorization, or more than double the $2,162,792,000 now contemplated. This would be increased to to $6,500,000,000 in the 1950 fiscal year.

In manpower, the Air Force would be the weakest service. Under the Forrestal "balanced program" the distribution would be: Army, 837,000; Navy, 664,000; and Air Force, 502,000.

Forrestal paved the way for recommendation at a later date of the $22,400,000,000-a-year defense program, involving a 70-Group Air Force program, during his appearance before the Senate committee, reporting that he is "now studying it."

Senators tangled with the Defense Secretary over the advisability of long-range aircraft procurement. Forrestal first applauded the action of the House in making $822,000,000 for aircraft procurement available for the 1949 and 1950 fiscal years as "a move in the right direction" of long-range planning. Later, Forrestal opposed appropriation of the sum "at this time" claiming it would throw the services out of balance through over-emphasis on the air arm. Pointing out that the military establishment would not be required to expend the appropriated Air Force funds if it were not deemed advisable, New Hampshire's GOP Sen. Styles Bridges pressed Forrestal as to why he objected to having the funds available. Forrestal's reply was that "the pressure" to spend the appropriated funds "would be too great" and that, therefore, Congress should not appropriate them—a contradiction of his recommendation that funds be made available for long-range programming.

Personal Plane Exports

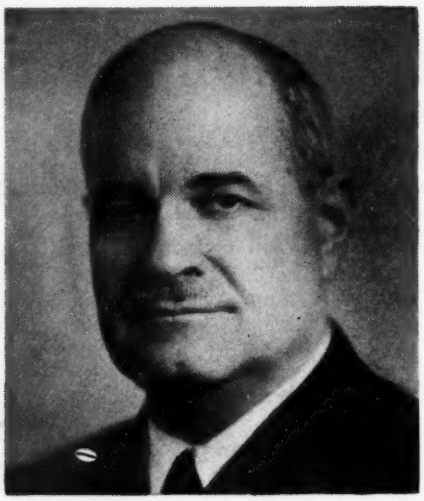
Twelve personal aircraft companies exported in March, 47 aircraft valued at $227,451, it was announced by the Aircraft Industries Association. The totals represent 7.1 percent of production and 9.7 percent of dollar values for these companies, as compared with 46 planes, or 10.4 percent of all production, valued at $169,117 for the previous month, when dollar value was 11.8 percent of total output.

Greatest importer was Brazil, which received 11 aircraft valued at $67,624. Brazil also led January and February importers, receiving 13 aircraft valued at $62,423 for January and 11 aircraft valued at $55,323 for February.

Canada was second greatest importer for March, receiving nine aircraft valued at $23,848.

Others: India, five; Mexico, five; France, four; Panama, two; Paraguay, two; South Africa, two; and Argentina, Guatemala, Haiti, Portugal, Uruguay and Venezuela, one each.

PICKET LINES bottle up work on USAF and commercial orders . . .



. . . as the union's Harold Gibson and company's A. F. Logan face the issues.

Strike at Boeing Halts Production

Long dispute likely as company appeals to international body, and expresses hope of getting unbreakable contract.

A strike at the Seattle plant of Boeing Airplane Co. has halted work on one of the industry's largest military and commercial backlogs and delayed delivery on two of the Air Force's prime future weapons, the B-50 and B-47 bombers.

Unless the government can induce or force arbitration, the strike of 14,800 members of Local 751 of the Aeronautical Mechanics Union appears likely to be a long one. The situation at midweek, however, held two possibilities for rapid developments:

The company turned to representatives of the executive council of the International Association of Machinists, Local 751's parent body.

In Washington, the headquarters of IAM conceded the strike was not approved by the IAM executive council which, under the IAM constitution, must okay strikes by any local lodge. Failure to obtain such approval results in forfeiture of "all rights to strike donations or to other financial aid."

▶ **Company View**—The company, represented by A. F. Logan, industrial relations director, takes the attitude that Local 751 repudiated and cancelled its collective bargaining agreement by "causing and sanctioning" a strike when the contract had a no-strike clause.

Boeing went over the head of the local, according to a company spokesman, to "establish a sound relationship with our employes—one which we can depend on. We are hopeful that out of this strike will come an organization on which we can rely—not one which breaks contracts.

"We think the issue is so important that we are ready to spend some time straightening it out. That is more important than getting the strike over in a few days."

▶ **Union View**—Disputing Logan's position is Harold Gibson, union president. The union holds that it has fulfilled its obligations under the old contract by negotiating and proposing arbitration and that the work stoppage therefore could not be "considered or classified as a violation of an agreement."

The Aero Mechanics newspaper states that the strike is the result of futile and desperate attempts of the local to settle second-round wage negotiations begun 14 months ago. It accuses Boeing of "arrogance" in refusing to arbitrate three issues in dispute: wages, seniority, and hours.

▶ **The Issues**—The union, whose last pay increase was in March, 1946, is asking a 30-cents-an-hour general wage increase, eight paid holidays and the continuance of a strong seniority clause. The company has offered an increase of 15 cents, but wants the seniority clause modified.

The company contends the seniority clause in the old contract makes it difficult to transfer employes from one shop to another. The union contends that giving the company the right to transfer employes would make it possible to switch the employe to a less desirable job.

The present trouble dates back to the spring of last year, when negotiations resulted in a company offer to increase wages and grant paid holidays equivalent to 10 cents an hour. The union rejected the offer and authorized a strike but IAM refused strike sanction, according to the company, on the ground that a strike would have been a direct violation of the contract.

There was no evidence in Washington that IAM President Harvey W. Brown has approved the present strike. The IAM constitution provides that the president may authorize an emergency strike in extreme cases involving wage cuts or increased hours of work where delay would "seriously jeopardize" the welfare of employes.

▶ **The Effects**—The strike is the first in Boeing's 32-year history, and its effects are both immediate and long-range.

- B-50s, Stratocruisers for Pan American Airways, American Overseas and other airlines, and Stratofreighters for the USAF will be delayed.
- Union members struck also at Moses Lake where the XB-47 is being tested, and at Alamogordo, N. M., where Boeing's guided mile project is located.
- Boeing has flown three Stratocruisers to Wichita to continue testing.
- A promising financial outlook for 1948 may be changed by the strike and consequent delay in deliveries. In 1947, Boeing had a net loss of $448,499. But it has been pushing certification testing on the Stratocruiser and hoped to deliver a substantial number of the 55 on order this year.

Helicopter Progress Is Revealed

Prices rising despite more military procurement and commercial sales, Helicopter Society forum told.

By ROBERT McLARREN

PHILADELPHIA — Increasing maturity of the helicopter, both as a military and a commercial vehicle, was revealed at the Fourth Annual Forum of the American Helicopter Society.

Perplexing design problems still plague the industry in its progress towards greater load-carrying capacity, longer range and improved performance. Despite substantial military procurement and growing commercial sales, helicopter prices are rising, rather than falling, due to increasing design complexity and labor and material costs.

The 500 delegates at Franklin Institute were told by Comdr. Frank Erickson, Coast Guard, that use of the helicopter in the Great Lakes last winter increased the effectiveness of icebreakers by 50 percent. New techniques evolved for air-sea helicopter-ship rescue teams have increased survivor rescue chances from 23 percent to 50 percent over either fixed wing aircraft or surface vessel methods. Flying a search course at right angles to the surface vessel, the helicopter is able to cover an area of nearly 150 sq. mi. per hour or a total of 175 sq. mi. for the helicopter-ship team.

▶**Navy Uses**—Lt. Cmdr. Henry Koscieske, USN, revealed that the Navy now uses helicopters as standard equipment aboard all carriers and will soon assign them to battleships and cruisers as standard scouting craft. Navy has established the helicopter as an essential craft for naval operations in polar regions and has found it ideal for such varied assignments as carrier plane guard, water target servicing, guard mail pickup and delivery and for ship radar alignment duties. Rescue of pilots who aborted carrier takeoffs or landings have been accomplished in five minutes from the time the plane hit the water until the pilot was back on the deck.

Capt. James Lyons, USAF, revealed that helicopters are now standard equipment in the three Air Rescue Service Squadrons but believes that increased range, lift, ceiling, and all-weather characteristics are badly needed in the military helicopter. He believes that a 700 mi. radius of action, a 12,000 ft. operating altitude and an all-purpose (sand, snow, ice, jungle, water, etc.) landing gear are immediate requirements for a satisfactory rescue helicopter.

▶**Commercial Operations**—Commercial helicopter operations are expanding as the craft proves its utility in jobs it is uniquely equipped to do, in the opinion of Knute W. Flint, A-F Helicopters, Burbank, Calif. In a paper read by Lou Leavitt in the absence of Flint, A-F commercial operations presently include power line patrol, crop dusting, fruit tree spraying, fire-fighting and pilot training, in which some 1600 hours of experience with three Bell Model 47 helicopters has been accumulated.

Some of the problems of helicopter economics were aired by Jack Rothman, United Air Lines, in an analysis of cost estimates for a proposed air mail pickup service in the greater Chicago area, which revealed that more than 40 percent of operating costs are overhead and indirect charges such as hangar rental, landing fees, installation of lights in neighborhood landing areas, mail handlers, etc. Other important costs are depreciation 22 percent, pilots 15 percent, maintenance seven percent, fuel and oil five percent and insurance three percent. These costs aggregate $1.59 per plane mile compared with the current Post Office Dept. rate of $1.00 per mile in existing helicopter mail routes.

New officers of the Society include Ralph Lightfoot, Sikorsky, president; Lou Leavitt, test pilot, vice-president; Thomas R. Pierpoint, Piasecki, secretary, and V. Roxor Short, Sikorsky, treasurer.

Court May Settle C-W Control Fight

Battle for control of the $135,000,000 Curtiss-Wright Corp. is expected to continue this week in court.

A group of stockholders, presumably favorable to the present management of President Guy W. Vaughan, filed an action in the Chancery Court of Delaware to restrain an opposition stockholders' committee from reconvening the annual meeting which ended in a dispute. Judge W. W. Harrington directed T. Roland Berner, leader of the opposition, to show cause May 5 why his group should not be enjoined from further proceedings.

▶**Hectic Meeting**—This action followed a tumultuous encounter of the two groups at the stockholders annual meeting (AVIATION WEEK, Apr. 26).

The meeting was scheduled to start at 11:30 AM at the company's office in Wilmington, Del. Present at the appointed time were Berner, his supporters, and a number of C-W officials.

President Guy W. Vaughan and his party were late in arriving from New York due to the breakdown of their train.

Berner, with the aid of his supporters, was elected co-chairman of the meeting due to the absence of Vaughan. ACW official served as co-chairman and the meeting was underway. As Vaughan arrived, he was recognized and invited to conduct the meeting by the C-W co-chairman. Berner, however, refused to recognize the C-W president and continued with the meeting.

▶**Two Meetings**—While Vaughan was moved in at the chairman's table, Berner was eased over to one side. Two meetings were conducted simultaneously under the direction of two separate chairman—working at cross-purposes with one another. Considerable confusion prevailed amidst the shouting from both sides.

Vaughan ignored Berner and proceeded with the election of the management slate of 11 directors. Berner, on the other hand, maintained that as Vaughan was not properly recognized such action was illegal and improper. Further, Berner, adjourned his meeting to May 7 to be reconvened in the same room. Upon the designation of election of the management slate and after answering a few perfunctory questions, Vaughan adjourned his meeting and considered the business of the annual stockholders' meeting completed.

▶**Berner Still Planning**—In the meantime, the Berner forces, confident of stockholder support for their plans to assume control of C-W and force a special cash dividend of $7 per share on the common stock, continue with the preparation of the May 7th meeting.

In a letter to Vaughan, Berner has "instructed" the C-W president to have all stockholders informed that the annual meeting has recessed for the purpose of permitting the inspectors of election to count the proxies. Berner, while appointing two judges and inspectors, has invited Vaughan to appoint two additional inspectors to conduct the count of the proxies. The Berner letter concluded: "In the interests of obtaining a full and fair count of the stockholder vote, I call upon you to cooperate with me and cease your maneuvers to disfranchise the stockholders who oppose you."

Despite conflicting claims, no unchallenged record of the vote for either slate has been disclosed. It is probable that after all the legal niceties have been completed, the ultimate outcome may be determined by a show of proxies. This process may become rather involved and protracted with proxies possibly challenged by both sides.

INDUSTRY OBSERVER

► **Air Materiel Command is experimenting with the towed helicopter as a means of increasing its range. Air Force anticipates a tactical need for the helicopter to accompany combat missions to provide quick rescue service with a helicopter of a size sufficient to rescue a complete bomber crew (up to 15 men). Experiments to date indicate considerable difficulty in towing presently available models because few tow planes can cruise at the 80-90 mph. safe speed of the helicopter.**

► Sperry Corp. is developing a special gyro-stabilized deck platform for the use of helicopters aboard ships. The platform is 30 ft. x 40 ft. and will remain level during rolling of the ship. With present decks rolling more than seven degrees, movement of the cyclic pitch control to roll the helicopter results in actual movement of the helicopter in the direction of the roll, leading to extreme difficulty in operating a helicopter from a rolling deck.

► **Coast Guard is studying the practicality of "parasite" helicopter design in which the folded craft could be carried either externally or internally in a large search plane for mid-air launching.**

► Air Materiel Command is coordinating the design of the "pack" to be used on the Fairchild XC-120 "Pack Plane" with its helicopter studies to develop a standard pack for both airframe configurations. Air Force sees in such an interchangeable design the ability to carry the pack from the C-120 landing site one jump closer to the front lines with a standard "heavy air lift" helicopter unit attached atop the pack.

► **Navy has abandoned scouting (VO) and observation (USC) aircraft tactical types for future design in favor of the helicopter. While present Curtiss Seahawks will continue to serve cruiser and battleships on catapults, Bureau of Aeronautics will not initiate any further seaplane scout-observation designs. Helicopters are now standard equipment aboard all U. S. aircraft carriers.**

► Bell Aircraft is now investigating a jettisonable motor winch which may be quickly freed from a hovering helicopter in the event the line and end fittings become entangled in heavy jungle, seaweed or surface wreckage during a rescue operation. Bell experience in Argentina revealed the dangers of such a situation with the present fixed wench in the cabin.

► **Coast Guard is experimenting with a method of overwater helicopter refueling in which fixed wing aircraft drop fuel containers by parachute which are retrieved while hovering by the long-distance helicopter. Current problem is an automatically detachable parachute which is freed as the container is lifted from the water.**

► Air Force is utilizing helicopters to descend to wrecked aircraft, which have been previously discovered and occupants evacuated, to paint large yellow crosses on the wreakage identifying it as a "previously serviced" wreck. The operation was deemed advisable to end the constant reporting of wrecked aircraft months and even years after the occupants and salvage had been removed.

► **Use of helicopters operating with Coast Guard ice breakers in the Great Lakes last winter freed icebound shipping at Buffalo 67 days ahead of schedule and increased the effectiveness of the icebreaking operation by 50 percent. The helicopter scouted as much as 100 miles ahead of the icebreaker and determined the route of thinnest ice ahead. It also permitted the icebreaker skipper to perform frequent inspection of icebound groups of ships to determine the most effective route for freeing them.**

► Air Materiel Command will concentrate its design and development attention in the future on the milti-engine helicopter to provide single-engine safety feature for long over-water hops. AMC believes that two-speed transmission, engine supercharging and all-weather instrumentation and equipment are immediate helicopter design requirements. AMC now has 17 helicopter design and development projects including cargo and heavy lift "flying crane" types. Compressor-fed turbine blades, of the type now being tested by General Electric Co., will be flight tested in the near future. Jet-powered blades, while heavy fuel consumers, provide torque-free operation for "flying crane" duties.

► **Air mail handling of Los Angeles Airways, Inc. by helicopter has increased from 268,061 pieces during its first month to 412,168 pieces the last month reported. LAA has installed two-way HF radio for communication between pilot and post office and is currently installing landing lights and special night flying instruments to permit last clean-up of outgoing mail after dark.**

Crash Radio Set

The Washington State National Guard is experimenting with a crash radio set invented by R. O. Ward, state patrolman of Vancouver, Wash., who conceived the idea while searching for a lost plane in southwestern Washington.

The set is a small, compact radio in a crash-proof, fireproof container, which is set off automatically by the impact of a crash. It sends out a continuous signal, enabling searchers equipped with radio direction finders and other instruments to plot the exact location of a crashed plane.

AVIATION CALENDAR

May 4—ICAO North-Atlantic regional meeting, Paris.
May 4—ICAO European-Mediterranean Regional Meeting, Paris.
May 5-6—Air Transportation Education Conference, Purdue University, Lafayette, Ind.
May 12-15—Aviation Writers Association, 10th Annual Convention, New York City.
May 16—Annual Cotton Carnival Air Show, Memphis, Tenn.
May 17—ICAO facilitation division, Geneva.
May 17—ICAO North Atlantic Regional Meeting, Paris.
May 18-20—AIA board of governors meeting, Williamsburgh, Va.
May 19—Air Commerce Day at Miami, part of World Trade Week observance.
May 20—ICAO European-Mediterranean regional meeting, Paris.
May 23—Seventh annual national meeting, Society of Aeronautical Weight Engineers, Columbus, Ohio.
May 27-28—Third Annual Michigan Aeronautic Conference, Lansing, Mich.
May 29-30—New England Seaplane Regatta (AOPA), Lake Winnipesaukee, N. H.
May 30—American Legion National Air Show, Berry Field, Nashville, Tenn.
June 1—ICAO second assembly, Palais Des National, Geneva, Switzerland.
June 1-6—Second annual all woman air show, Miami.
June 6-11—SAE Summer Meeting, French Lick Springs Hotel, French Lick, Ind.
June 8-10—Airport Management Conference, College Station, Tex.
June 11-13—Spring Air Cruise sponsored by Pennsylvania Aviation Trades Association, Williamsport, Pa.
June 14-15—Airlines Medical Directors Association, annual meeting, Royal York Hotel, Toronto.
June 15-17—Airport management conference, College Station, Tex.
June 16-18—19th annual meeting, Aero Medical Association, Royal York Hotel, Toronto.
June 17-18—Aviation Distributors and Manufacturers Association, Grand Hotel, Mackinac Island, Mich.
June 21-25—1948 Annual meeting, American Society for Testing Materials, Detroit.
June 27-30—Annual convention, National Aeronautic Association, Hotel Radisson, Minneapolis, Minn.
July 2-9—National Air Tour Week, sponsored by United Pilots & Mechanics Association.
July 2-9—Second National Air Tour Week, United Pilots and Mechanics Association.
July 4-5—Annual National Air Show, Port Columbus, Columbus, Ohio.
July 14-15—Institute of Aeronautical Sciences' annual summer meeting and dinner, Hotel Ambassador, Los Angeles.
July 17-18—National Trading Day and All-Dixie Air Show, Chattanooga, Tenn.

ENGINEERING & PRODUCTION

Douglas Hints End of DC-9 Project

Decision influenced by cost, and apparent belief that jet transport is nearer now than originally estimated.

By SCHOLER BANGS

Douglas Aircraft Co. has indicated that it has abandoned its DC-9 project, and that close attention is being given to jet transport proposals.

At an annual stockholders meeting in Santa Monica, Donald Douglas disclosed a significant revision of a previous estimate that the jet transport probably is seven to ten years distant.

He said:

"I am convinced now that it is not quite so far away."

▶**DC-9 Status**—While Douglas did not say flatly that the long and much-discussed DC-9 is a dead project, this implication was unmistakable in his discussions with stockholders. He said that the company has not advanced the project beyond some wind tunnel tests and partial engineering; and that the pressure of Government business has "put it in the background." He indicated that the company has elected not to risk a heavy development cost, which would run close to $15,000,000, in the face of "uncertain markets."

At this point Douglas said that he was influenced to some degree by belief that the jet transport is nearer to realization than he once had assumed.

▶**Profit Expected**—Stockholders were assured that if present estimates prove accurate the company will show a "modest amount" of profit for 1948. Also, Douglas said he hoped to continue the company's policy of paying dividends annually and indicated that if they cannot come out of direct earnings they will be paid from earned surplus. Holders of 600,000 shares of Douglas common stock have received dividends averaging $5 per share over the past seven years. A $2.50 dividend for 1947 was balanced by one of $7.50 paid the year previous.

Lacking specific new orders at the time of the meeting, Douglas could not forecast new military orders to result from air group expansion planning in Washington.

However, he did disclose that he has urged Secretary of Defense James Forrestal to consider meeting the need for a "balanced air force" by ordering military air transports in sufficient quantity to give air and ground attack groups adequate logistical aid.

▶**Tooling Retained**—Hopeful of future transport orders, Douglas is preserving at Long Beach, Calif., all tooling for the C-74 transport, 13 of which were delivered to the Air Forces as long-range transports.

Douglas also will preserve at Santa Monica its DC-6 line for quick production of cargo versions if ordered by the Government.

Douglas informed stockholders that unless new orders are received the production of passenger DC-6s will conclude July 1 with delivery of the 149th airplane. He indicated that present markets for additional DC-6 sales are limited, and estimated that on a long-term basis his company might anticipate domestic orders for an additional 15 units. He said that "with luck" his company might sell an additional five to ten DC-6s to foreign buyers.

Stockholders were given a mild surprise when Douglas informed them of the extent of the company's spare parts business.

He said that in 1947 the company sold $22,000,000 worth of spares for C-54s and C-47s and that the average sale was only $12. This would account for 1,800,000 separate orders.

Charles Hart Miller To Glenn L. Martin

Glenn L. Martin Co. has elected Charles Hart Miller, former general manager of Republic Aviation Corp., as vice president-sales. Miller, who will direct all military and commercial sales activities, will report to Harry T. Rowland, executive vice president.

A graduate aeronautical engineer and former Army Air Force pilot, Miller's career in the aircraft industry started in 1935, when he went to work for Seversky Aircraft Corp. He was in turn acting chief pilot and engineering assistant to the president. When the Seversky firm became Republic Aviation Corp. in 1939, Miller was assistant to the president.

While he was associated with Republic, Miller progressed from project engineer to executive vice president and general manager.

He is a member of the Institute of Aeronautical Sciences and the National Aeronautic Association.

In other personnel developments:

• **Elastic Stop Nut Corp. of America** named E. F. Nason general sales manager. Prior to his new appointment, Nason had been aircraft sales and product manager and previously was associated with Pratt & Whitney division of United Aircraft Corp. Clarence E. Unterberg, New York investment banker, has been elected to the board of directors.

• **Westinghouse Electric Supply Co.** elected David M. Salsbury president to succeed B. W. Clark. Salsbury has been executive vice president of WESCO, wholly owned subsidiary of Westinghouse Electric Corp., since 1946 and vice-president since 1944.

• **Bendix Aviation Corp.** named Clarence W. Avery, board chairman of the Murray Corp. of America, and John M. Floyd, vice-president and a director of the A. O. Smith Corp., directors at the annual meeting of its stockholders.

• **Kester Solder Co.** appointed Joseph H. Humble general sales and advertising manager. He has been associated with the company for 25 years.

• **Celanese Corp. of America** named Edward P. Killackey assistant treasurer, with headquarters in New York.

Lockheed Shareholders Protest Stock Bonus

Annual meeting of Lockheed Aircraft Corp. stockholders this week is expected to produce criticism of the management's plan to create 100,000 additional shares of stock to distribute as bonuses to key officers and employes. A number of shareholders have expressed written opposition to the plan.

▶**Management's Aim**—The management would make such stock available for a period of five years at not less than the market price on the day previous to its award. One of the aims advanced is to give the recipients a "sense of proprietorship" in the company.

The market price of the stock is currently around $22 per share. Book value is believed to be around $38 with new working capital about $25 per share.

▶**Stockholders' Objections**—Objections are directed at the alleged inside information the management is withholding from stockholders. In other words, results for the current quarter are believed to have been outstandingly good with prospects for the remainder of the year bright. When such results are made known, it is alleged that the price of the stock may spurt. Moreover, it is demanded that the plan contain sufficient safeguards to insure the stockholders of participation in the earnings of the company before unusual increments accrue to the officer stock distribution plan.

There is further criticism leveled at key officers of Lockheed for selling their stock in previous years at levels almost twice that of the current market, and now attempting to obtain a call on stock

under unusually favorable circumstances. It is maintained that if stock participation is desired, these same officers are free to make their purchases in the open market the same as the rest of the public.

Gamble Paying Off?

Increasing business at Bell gives justification to decision to enter unproven field.

Bell Aircraft Corp.'s delivery of 100 commercial Model 47 helicopters during 1947 gives a hint that a gamble is paying off.

Founded to specialize in military aircraft, and one of the country's prime suppliers of fighting planes during the war, Bell in 1945 made almost a complete break with the past. It set out to establish a future in the unproven field of commercial helicopters.

The company's annual report, stating that more than 60 percent of its present helicopter backlog represents repeat orders, indicates it has done just that.

► **Prime Mover**—Still another instance of Bell's recent pioneering activities is its "prime mover," a motorized wheelbarrow introduced January, 1948. By Apr. 5, sales amounting to more than $320,000 were announced by dealers established in 50 key cities. The Midas touch seems to be working again.

Bell is continuing in the military field with development of guided missiles and supersonic research planes. The first two XS-1s have been delivered and are undergoing further tests.

An order for 70 Model R-13B helicopters has been placed by the Army Ground Forces. Other military work includes the XR-12 and the XR-15, both of which are in their flight-test stages.

Backlog as of Apr. 5, 1948 was $16,000,000. Net loss for the year ending Dec. 31, 1947 amounted to $1,183,995 on sales of $14,131,403. Loss is attributed to further refinements and adjustments made necessary by the introduction of the Model 47 helicopter.

Chance Vought Moves Operations To Texas

Shift of Chance Vought Aircraft division, United Aircraft Corp. from Stratfort, Conn., to Dallas, Tex., was scheduled to begin last week.

Arrangements with the Navy included CV's leasing of the old North American Aviation plant "B" at Grand Prairie, Tex., until Jan. 1, 1954, with two additional five-year options (AVIATION WEEK, Dec. 29, 1947).

► **Transfers Employees** — About 1400 employees are being transferred to Texas, and Chance Vought expects to draw approximately 6000 more from the Dallas area. Most of these will be former North American Aviation workers. The Stratford plant currently is employing 8,000.

Personnel training at Dallas will start in June, with preliminary operations on the XF6U-1 Pirate beginning in July.

The Stratford plant, which now is in production on the F4U-5 Corsairs, will continue full-scale operations for well over a year. The company states that there will not be a "sudden shutdown."

► **Dallas' Attractions**—One of the major attractions at Dallas is Hensley Field located near the plant. The field has three runways, one of which is to be lengthened by the City of Dallas to 8000 ft. Free from commercial traffic, site is particularly favorable for test-flying experimental jet planes. Within a 25-mi. radius of the field are five other airports which may be used for emergency landings.

Weather conditions permit good flying 98 percent of the year, with contact flying possible 94 percent of the time and instrument flying 4 percent of the time.

BRIEFING PRODUCTION NEWS

► **Baumann Aircraft Corp.**, Burbank, Calif., has completed arrangements to occupy a new factory building at Goleta, Calif., on property adjacent to Santa Barbara Airport. The facilities have been leased from the City of Santa Barbara on substantially reduced terms for the first three years to assist the company's entry into production of the B-250 twin-engine transport.

► **Texas Engineering and Manufacturing Co.** has received approximately $1,000,000 in new orders, including bottom panel assemblies, canopies and upper and lower fins for the Fairchild C-82 Packet. TEMCO previously produced about 140 similar plane sets for Fairchild. Other orders include popcorn vending machines, snow cone machines and tractor hoods.

► **Continental Motors Corp.** is now in production on a light, portable power plant, the "Multi-Tool," used to drill, sand, grind, polish, etc. Weighing only 50 lb., it produces one and one-half horsepower and can drive cement mixers, pumps, compressors, generators, corn shellers, feed grinders and mixers.

► **Weber Showcase and Fixture Co.'s** aircraft division, Huntington Park, Calif., now claims to be the largest producer of airline galley equipment in the world with current production for the DC-6s of KLM, Scandinavian Airlines System and FAMA, Argentine airline. Buffet equipment is being used by Braniff Airways, Philippine Airlines, National Airlines and United Air Lines. Seats are in production for the Lockheed Constellation. Production includes wash basins, toilets, doors, fairings and subassemblies.

► **Bendix Aviation Corp.'s** Eclipse-Pioneer division is now flying a North American B-25, two twin-engine Beechs and a Navion in its flight research program on automatic pilot, automatic approach system, attitude gyros, gyro horizons, flux gate compass and similar equipment.

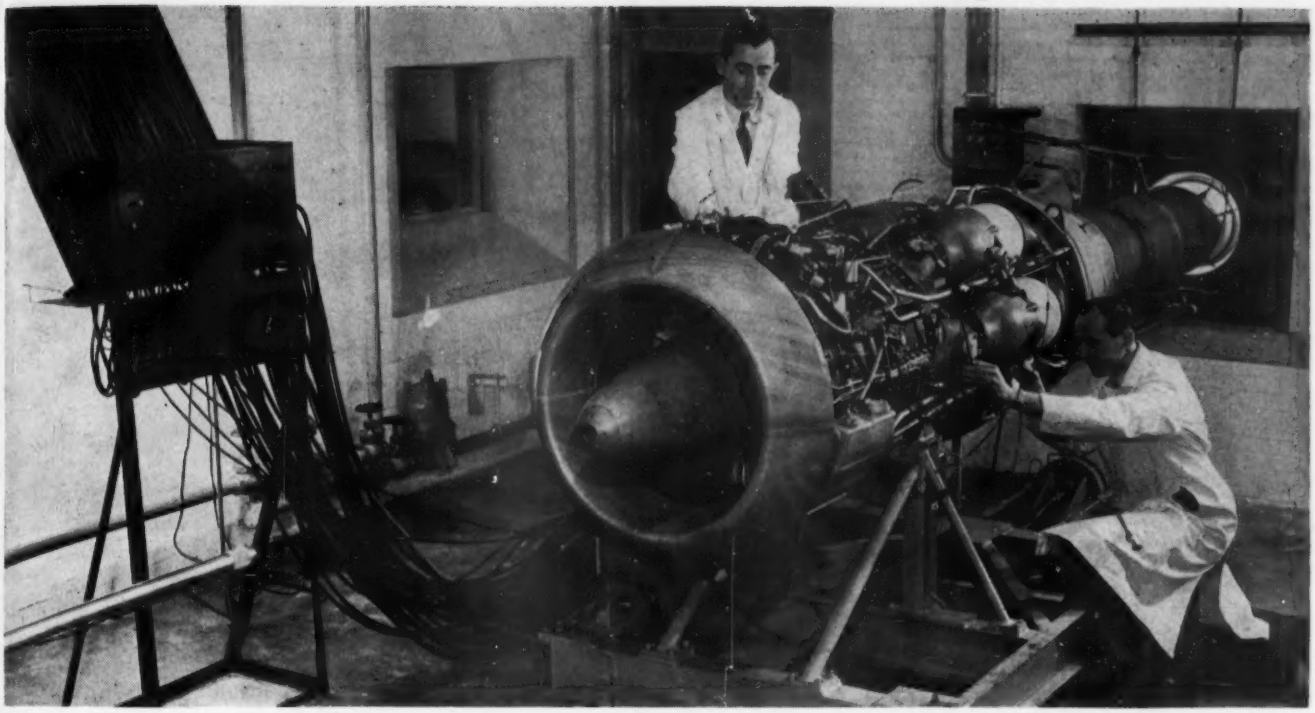
► **Curtiss-Wright Corp.'s** airplane division will close its Columbus plant for two weeks beginning June 21 to accommodate production requirements. The move was decided following analysis of production problems that face the division in the next few months. Employees will receive regular vacation pay during the period.

► **McDowell Manufacturing Co.**, Pittsburgh, announces several improvements in its new model "D" starter designed for lightplane engines. These improvements, including a heavier bearing spacer and a new type main spring, have been tested in both hot and cold weather, and have resulted in reducing service and maintenance.

► **Bendix Products Division**, South Bend, is now in production on what is believed to be the largest production carburetor in the world. The Stromberg PR-100 has a passage of 100 sq. in. controlled by eight synchronized throttle valves. The PR-100 is designed for installation on engines up to 5,000 hp.

► **Air-Parts, Inc.**, distributors of aeronautical supplies, has opened a New York office at 15 Park Row to facilitate the handling of export orders. Air-Parts' home office is 723 Sonora Ave., Glendale, Calif.

► **Pacific Airmotive Corp.** has been appointed West Coast factory representative for the line of hydraulic flow regulators and hydraulic measuring devices manufactured by Waterman Engineering Co., Evanston, Ill.



Avro's Chinook is Canada's initial turbojet. Engine is shown being readied for run on test bed. Control room window is seen at left.

Canada Tests First Home-Built Jet Engine

2590-lb. thrust unit is forerunner of larger engine to power Avro fighter plane now being constructed.

First Canadian-designed-and-built gas turbine engine—the Chinook—was recently tested at A. V. Roe Canada Ltd., Toronto, before top Royal Canadian Air Force, National Defense, and National Research officials.

Design on this development power plant, under construction for the past year, was started by the Canadian government's Turbo Research Ltd. in 1944. Estimated development cost of the engine is about $3,000,000.

▶ **Larger Engine In Works**—Based on the Chinook's performance, a larger engine for the RCAF is now under construction at the Roe plant. This second engine, along with the Avro-designed fighter craft it will power, and presently being built, are on the top-secret list of the RCAF. However, it is learned that this engine will develop about three times the power of the development turbojet.

▶ **Chinook's Makeup** – Basically, the Chinook consists of a nine-stage axial flow compressor, six combustion chambers, and a single stage turbine.

• **Compressor** is preceded by precision-cast aluminum alloy inlet guide vanes, and discharges air directly into the combustion chambers through six diffusers.

First two stages of rotor blades are stainless steel, the remainder aluminum alloy. The rotor is supported in a self-aligning and anti-friction bearing at the front end, and a duplex-type ball bearing in a self-aligning mounting at the rear.

• **Combustion section** consists of six interconnected straight-through combustion chambers discharging into a fabricated nozzle box. Each chamber consists of an outer air casing and an inner flame tube.

• **Turbine rotor** comprises an alloy steel disk with integrally forged stub shaft. Chrome-nickel blades fasten to the rim with fir-tree roots. Cast chrome-cobalt nozzle guide vanes are used.

Front end of the turbine shaft connects directly to the rear of the compressor rotor through a flexible coupling designed to compensate for angular misalignment.

• **Tail cone** is fabricated from stainless steel sheet with cast flanges at front and rear. It is insulated by glass wool blankets encased in silver foil shields under a sheet aluminum covering.

• **Fuel system** comprises two variable delivery positive displacement pumps, one flow control unit, pressure regulating valve, and two torch ignitors.

• **Dry sump lubrication system** incorporates a multiple type pump consisting of one pressure and two scavenge elements. The scavenge pumps draw oil from the front and rear main bearings, with the center bearing drained by gravity both fore and aft.

An oil tank, oil filter and pressure regulator complete the system.

▶ **Dimensions, Thrust** – The engine weighs 1250 lb., is 32 in. in diameter, 125 in. in overall length, and has a frontal area of 5.59 sq. ft.

The Chinook has not yet been tested in any aircraft, but is designed to give 2590 lb. thrust at 10,100 rpm. for take-off (2 min. limit). It uses aviation kerosene.

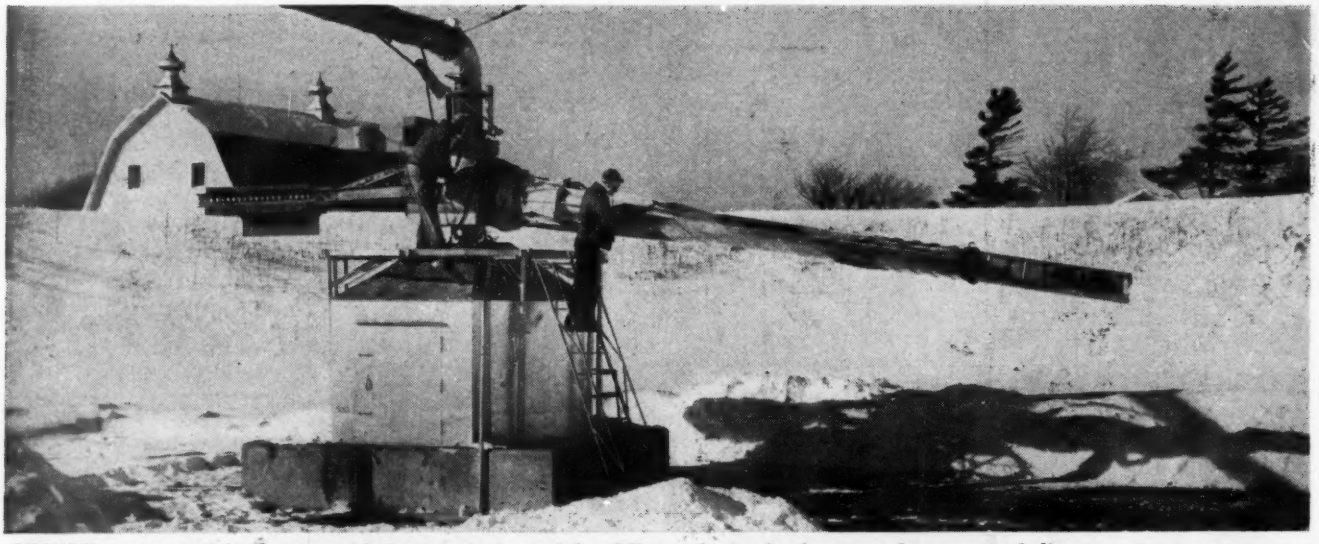
A complete test building has been constructed at the Toronto plant, for all necessary runs, with full complement of instruments. In addition to this, there is another test facility at Nobel, Ontario.

▶ **Jet Transport Coming**—Roe is also completing a jet-powered passenger transport to cruise at 400 mph. This is to be test flown next winter if present production continues on prototype.

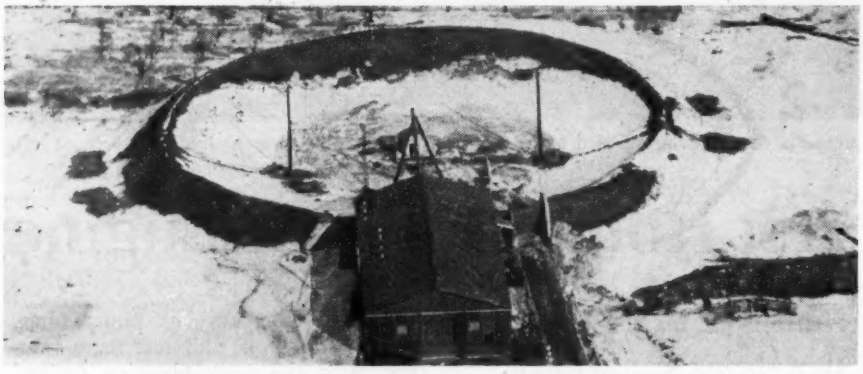
Originally, the transport was to have been powered by two Chinook-type turbojets, but plans now are to use four British-built Rolls Royce Derwent jet engines.

The craft will seat up to 40 passengers in two double-seat rows, have galley, two washrooms, and other facilities for transcontinental flights.

Performance data and drawings of aircraft are expected to be released early this summer.



SINGLE, counterweighted rotor with jets at tip is used by GE to obtain development data on jet helicopter components. . . .



. . . in bowl-shaped rotor-test-pit. Adjoining steel building houses laboratory equipment, workshop, observation room, and controls and instruments.

Jet Blades Tested In Outdoor Pit

General Electric constructs new-type facility to obtain experimental data on jet rotorcraft design features.

A novel jet helicopter testing facility has been placed in operation by General Electric's Thermal Power Systems Division, at the company's flight test center, Schenectady County Airport, New York.

Under an Air Force research and development contract, the installation is intended to produce experimental data on jet-propelled helicopter design features.

▶ **Combustion Within Hub**—The GE phase of the overall Air Force jet helicopter development program covers the design of a unit incorporating combustion at the hub, with the hot gases routed along the blade leading edge and issuing from jet nozzles at the tip.

▶ **Outdoor Setup**—The experimental blade units are tested in an outdoor bowl-shaped pit 150 ft. in diameter and 13 ft. deep, formed by a simple circular earth wall.

The rotor unit is mounted on a special stand imbedded in concrete in the center of the pit and is remotely controlled from a 40×80-ft. all-steel structure used for laboratory and workshop activities.

Only a single test blade is used, the other "blade" being a counterweight arm.

▶ **Indoor Setup**—The end of the laboratory building adjacent to the pit houses a special observation room with 3-ft. concrete walls to safeguard engineers during test of the fast-whirling jet helicopter blade.

▶ **Electrical Hookup**—A flexible source of power is provided to perform various required functions.

A 1000 hp. electric motor is used to drive the blade when the jet-driven tip is not firing, in order to study drag of the test setup. The motor is driven by d.c. generators mounted on four surplus Navy diesel power plants.

When the helicopter blade is operating under its own power, the electric motor is used as a generator to measure the thrust produced by the jet force.

Three surplus Wright Whirlwind engines, used in tanks during the war, drive air compressors linked in series to deliver a high mass air flow to an overhead duct extending out to the center of the test rig.

Special provisions have been made for conducting carburetor air to the engines and exhaust gases to the air outside the laboratory building.

▶ **Control Details**—Operation of the facility is centered in a master control panel with levers for engine fuel throttle, blower, air inlet valve, blower blast gate, and air header valves on each of the three tank engines.

The control center also contains instrumentation for the jet rotor.

Direct observation of the whirling blade from the panel board is obtained through a series of mirrors.

▶ **Program Phases**—The development program is divided into two phases. First or preliminary part is a study phase covering evaluation, performance, and design of various types of power plants, and also the aerodynamic testing of critical components.

Already substantially complete, this phase includes static tests of various burner and nozzle configurations.

Second phase of the long-range program encompasses the dynamic tests of the burners in the outdoor pit.

In addition, the prototype jet engines to be used as helicopter power plant units will be erected and tested, supplying air to the whirl-test blade in the pit, and simulating ultimate operating conditions.

Program is under direction of J. K. Salisbury, project engineer; S. E. Johnson, administrative assistant; J. E. Lake, mechanical design; W. E. Wayman, aerodynamic and thermodynamic analysis; J. R. Parsons, combustion development; and C. Westcott, in charge of test facilities.

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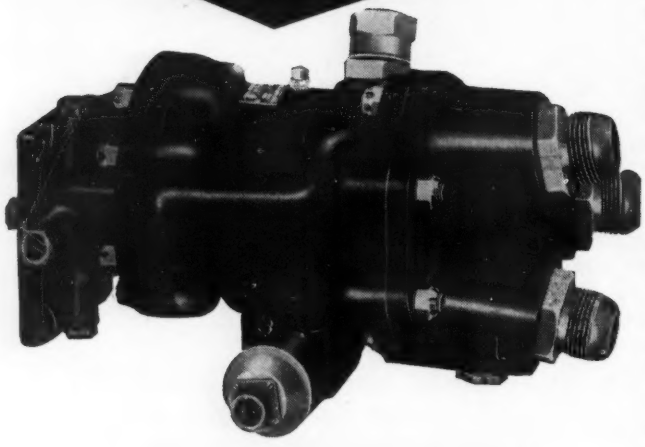

. . . to test the safety factor of this high-pressure fuel pump

When you're taking off in a jet job you just can't let the "fire" go out in the engine.

That's why Pesco engineers have developed a high-pressure fuel pump with two pumping sections, one for the main fuel system and the other for the secondary system that automatically goes into operation . . . just in case! And that's why these same engineers really gave this pump the works in testing it, and fed, into the suction side, such surprising materials as brass rod, a steel washer, steel nut, steel screw, lead pellet, brass wire, galvanized wire and other assorted "junk". What happened? All of these materials passed through the pump to the discharge outlet after being cut up by the gear teeth . . . or because of their size and contour, stayed on the suction side, being constantly repelled by the gear teeth. Only when piano wire wrapped itself around the gear did the gear seize. It was a pretty tough test. But then this Pesco High-Pressure Fuel Pump is built for really tough service.

Actually, this latest Pesco development is really two pumps in one. There is a common inlet, but two separate discharges and two drive shafts . . . one inside the other. If the main fuel system pump fails, the other automatically goes into action . . . and the all-important fuel continues to reach the engine . . . at the same capacity and same pressure as delivered by the main pump.

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Turboprop-powered Avro Athena Mark I three-seat trainer conforms to latest RAF all-weather specification. Jet pipe is on starboard side.

First Turboprop Trainer Nears Completion

Britain's three-place Athena incorporates several novel design features in addition to its new power plant.

The world's first specifically designed gas turbine engine trainer—Britain's Avro Athena Mk. I—will be flying shortly at the company's Woodford airport, near Manchester.

The Athena will be the last to take the air of three new types specially evolved for the radically different Royal Air Force training scheme introduced in 1947. Others are the Percival Prentice three-seat basic trainer and the Boulton Paul Balliol advanced trainer.

The Balliol and Athena both were intended for turboprop engines. The former started preliminary flight testing with a Bristol Mercury piston engine, but the Athena has been completed, as originally planned, with the turboprop.

▶ **Engine**—Power plant of the Athena is the Armstrong Siddeley Mamba, likely to be the first light turboprop cleared for operational use and quantity production. Present output is about 1010 shp. plus 320 lb. thrust, but this probably will be worked up with development—in this case to around 1500 shp.

Though running in 1944, the engine is still not in production, a reflection on the general difficulties met by engineers with the turboprop and its accessories.

▶ **All-Weather Equipment**—Apart from the new type engine, the Athena has at least two other features which single it out as a milestone in British aviation training.

First, it is more advanced than any previous RAF trainer in this category, having all the controls and equipment found on single-engine military aircraft. In this respect it approximates to the North American XSN2J-1.

Full radio gear—VHF transmitter-receiver, identification, beam approach—and complete instrumentation are included to conform to the RAF all-weather specification, which stipulates that trainers should be capable of operation in all but zero weather conditions.

This is another step towards the RAF goal of a compact, highly trained air force able to attack and defend regardless of flying conditions.

▶ **Adjacent Seats**—Second, side-by-side seating is provided for pupil and instructor, with a third seat to the rear for another pupil, pupil-instructor, or examining instructor. Theoretically, this layout has a number of advantages, but many experienced instructors are taking a conservative view, especially regarding the third seat, which they say is a waste of space and payload.

The Air Ministry is committed to the new layout in that it is going ahead with production of the Prentice basic trainer, and have also placed small preliminary orders for the Athena, and possibly the Balliol. A year or so of service use is likely to end the controversy one way or the other.

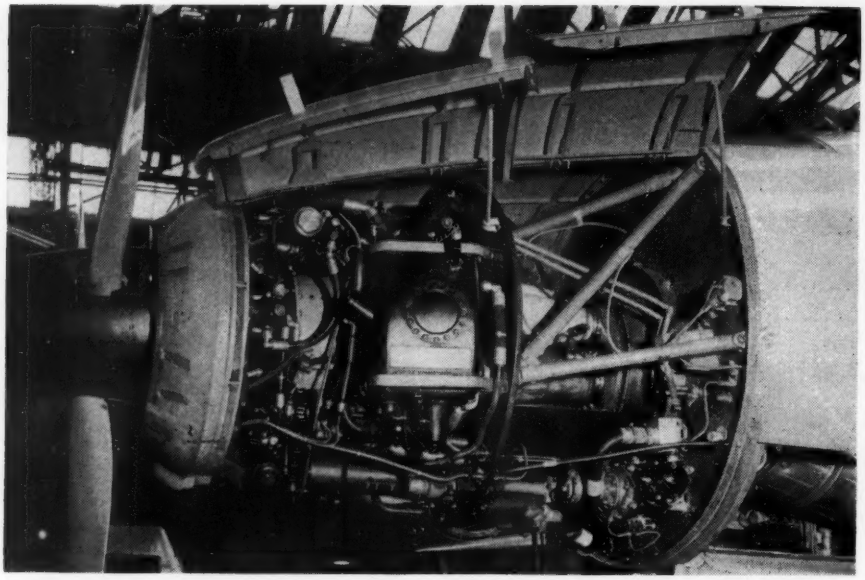
▶ **Cowling Details**—The Mamba engine cowling is exceptionally clean. The small diameter and sharp slope down from the cockpit give remarkably good visibility.

Nose cowling is very close around the long propeller spinner and forms a fixed annular air intake to the Mamba's ten-stage axial compressor.

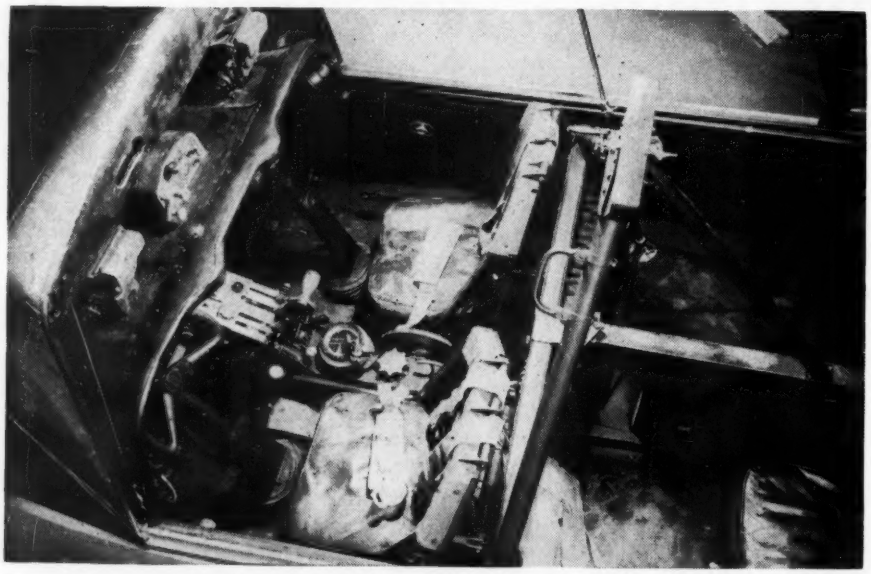
Apart from the nose ring, the entire cowling back to the firewall is detachable. Top and bottom are two main panels with stiffened edges, forming hinge and fastener anchorages for two

ATHENA SPECIFICATIONS

Span	40 ft.
Overall length	36 ft. 6 in.
Height	11 ft. 6 in.
Track	12 ft. 1 in.
Cockpit width	4 ft 6 in. at shoulder level 5 ft. 2 in. at seat level
Loaded weight	7,191 lb.
Wing loading	26.7 lb./sq. ft.
Power loading (less jet)	6.87 lb./hp.
Maximum level speed, at 10,000 ft.	287 mph.
Cruising speed, at 10,000 ft.	253 mph.
Rate of climb	2,630 fpm. at sea level 1,890 fpm. at 10,000 ft.
Time to 15,000 ft.	7.4 min.
Takeoff over 50 ft. (concrete runway)	604 yd.
Landing over 50 ft.	552 yd.
Stalling speed with flaps	80 mph.
Service ceiling	34,800 ft.
Fuel (normal)	216 gal.
(maximum with two 45 gal. drop tanks)	324 gal.



Mamba installation opened for inspection. Jet exhaust is ducted under cockpit floor.



Three-place layout in Athena cockpit features new 25 G seats. Twin gunsights and central control pedestal are provided. Crash pylon is mounted on heavy partitions.

folding panels either side. These hinge upward and are held open by stay rods for normal inspection access.

Accessibility is a feature of all three new trainers, aimed at a high utilization rate per aircraft, so that the added expense of each craft may be justified economically as well as operationally.

▶**Mount for Interchangeability** – Engine mounting is a tubular steel triangulated structure, with fuselage pickup points specially designed to take future interchangeable power eggs. Thus, other turboprops in the same light class could be fitted with virtually no power plant alterations, since all are governed by the Ministry of Supply interchangeability policy.

Another purely British practice is evidenced by the engine accessories gearbox. This is mounted remotely as a unit on the firewall and driven by a single shaft from the engine transmission, easing engine removal and replacement.

▶**Jet Ducted Starboard**–The Mamba presently gives a thrust residue of about 320 lb. after the shaft horsepower has been taken from it. The jet is ducted under the cockpit and exhausted on the starboard side of the rear fuselage at an angle of about 20 deg. from the centerline.

Jet efflux immediately aft of the engine was not practicable because of the nearness of the retracted undercarriage wheels housed in the fuselage belly below the wing roof. And straight exits through the rear fuselage bottom, or a tail pipe, were ruled out because of blasting the tail wheel, and thrust losses and structural complication, respectively. Thus, the starboard outlet was a logical choice, although unusual.

▶**In the Cockpit**–With front seating arranged abreast, the cockpit is laid out "airliner" fashion with most of the auxiliary controls–for engine, flaps and trim, landing gear, brakes, fuel, etc.–on a low central pedestal. Duplicate engine controls are placed in the normal port position for the first pilot.

The dash has a standard blind flying panel in front of the first pilot, engine instruments in the center, and other indicators and switches in front of the second pilot. Amber screen controls are mounted on the coaming above the engine instruments, flanked by two gyro-gunsights.

The port control column has a wheel grip and the starboard one a spade grip, so that pupils can get used to the feel of both.

▶**High G Seats**–The Athena seats are of a new rigid 25G pattern, specially developed by A. V. Roe with official approval. These are fully adjustable and have great strength and solidity. Aft of the front seats is a heavy transverse partition on which is mounted a tough steel tube tripod for overturn crash protection. After this is a lengthwise partition, with the third seat to the left, and to the right a space for luggage or extra equipment.

▶**Canopy Details**–Official emphasis on a good view is apparent from the layout of the canopy section. The windshield is very wide and flat, with small side panels. The one-piece jettisonable canopy, heavily framed, is power-driven or wound back about 4 ft. for access to all seats, and there is a small fixed aft portion to complete the roughly teardrop shape.

▶**Night Simulated** – Most interesting canopy feature is the power-retracting amber-tinted front screen for "two-stage amber" simulated night training. Normally out of sight beneath the coaming, this screen slides upwards within the front windshield panel, and small "leaves" extend to cover the side panels.

The top front and sliding side portions of the canopy are also amber, and when the pilot dons blue-tinted goggles, he can only see vague outlines outside the cockpit due to the light filter effect of the amber and blue tints.

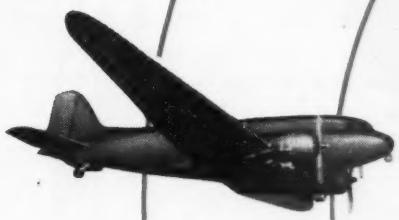
The inside of the cockpit is only blue tinted as seen through the goggles, and instruments and controls are easily distinguished. By varying the shade of blue in the goggles, exterior conditions from dusk, through moonlight, to pitch black can be simulated, and all night training and instrument flying done in broad daylight.

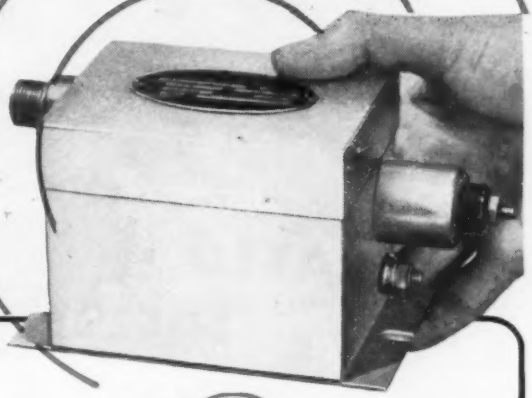
Cabin night lighting is the usual ultra-violet and red, with separate compass and trimmer lamps.

▶**Cockpit Standardization** – Although the British probably were the first to

THE HEAT IS ON...

sure...quick!





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G-E aircraft transformers are thoroughly protected against internal corona, moisture penetration, and corrosion. They give dependable operation at altitudes up to 50,000 feet, and operate within an ambient temperature range of −70 C to 71 C.

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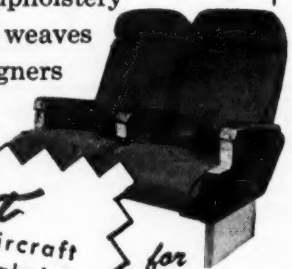
GENERAL ELECTRIC

411-11

Bridgeport's new fabric will adorn United Air Lines' Mainliner "340"

Inspired by the majestic beauty of Boeing's first Stratocruiser, "Queen of the Airlanes," Bridgeport designers have once again created a distinctive new upholstery fabric for an exacting customer. Woven to an exclusive pattern, in both powder blue and cocoa beige, the new cloth will be used solely for upholstering the chairs in two tone for outfitting United Air Lines' new Stratocruiser fleet. Because the new fabric is made of the finest quality woolens and worsteds, United's passengers will find it delightfully soft and fur-smooth, yet non-clinging. Maintenance crews will like it, too, for like all Bridgeport Aircraft Fabrics, it resists stains and dirt and makes periodic cleaning easier and faster. *It is certified flame-proof by the CAA.* What's more, special sewing and stretching characteristics will speed installation by as much as 20%.

Bridgeport's specially designed aircraft upholstery fabrics are available in many unusual weaves and appealing colors, or Bridgeport designers will create for you an exclusive color or pattern. Write for full details and sample swatches of this extremely lightweight and durable fabric.



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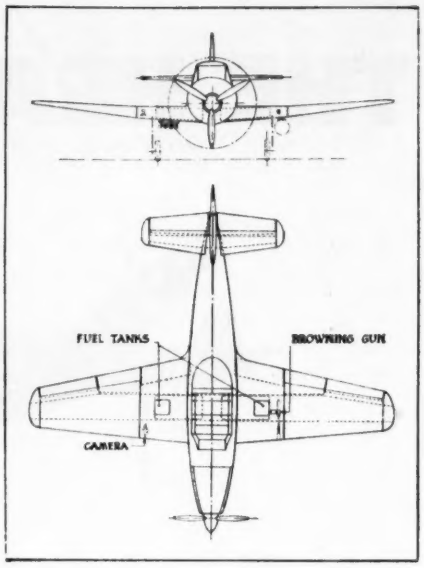

begin standardizing cockpit equipment and (in a small way) layout, well before the recent war, recent progress here has been slower than in the U. S.

A big advance is apparent in the broad similarity of cockpit layout in the three new all-through trainers, though there are alterations and additions in the more advanced Balliol and Athena.

Similarity between the cockpits of the Athena and larger multi-engined types is logical because the Athena will train pilots for all types of aircraft—singles, twins, etc.

► **Belly Structure**—Main airframe structure is as conventional as other Athena features are unconventional, but one item of interest is that the underside of the aircraft in the vicinity of the center section is a secondary structure which can readily be repaired or replaced if damaged in a belly landing.

Other features include spring-operated servo tabs on the ailerons, high-set tailplane to prevent blanketing the rudder, outer wing trailing edge pivot-type dive brakes (dive limit 325 mph.), and steerable tail wheel.

► **Pneumatics Used**—Either an electric or pneumatic actuating system is available, but initial production machines will have a pneumatic system for operating flaps, landing gear, dive brakes, amber screens, etc., plus an emergency air system and air brakes.

Two 12v batteries for radio, hood, etc., are fitted in a neat "crate" installation which may be lowered through the fuselage bottom for servicing. Four batteries are used if the alternate Rolls-Royce Dart turboprop is fitted, because of the heavy load imposed by the Dart's electrical starter. The Mamba is cartridge-fired.

Radio is at rear of cockpit, and a remotely controlled F.24 camera is under the cabin floor. Other military gear includes a .303 Browning gun in

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This machine tests the strength of Kaiser Aluminum.

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Their reputations *depend* upon the quality of the aluminum they use. And their production depends upon the kind of service their suppliers give them. Which means *on time* deliveries . . . promises kept.

That they use Kaiser Aluminum *consistently* is proof of its *consistent* high quality.

It's evidence, too, of something more. Of the eagerness of an aggressive, young-minded organization to *keep* customers satisfied. Through dependable deliveries. Through skilled—and immediate—engineering assistance.

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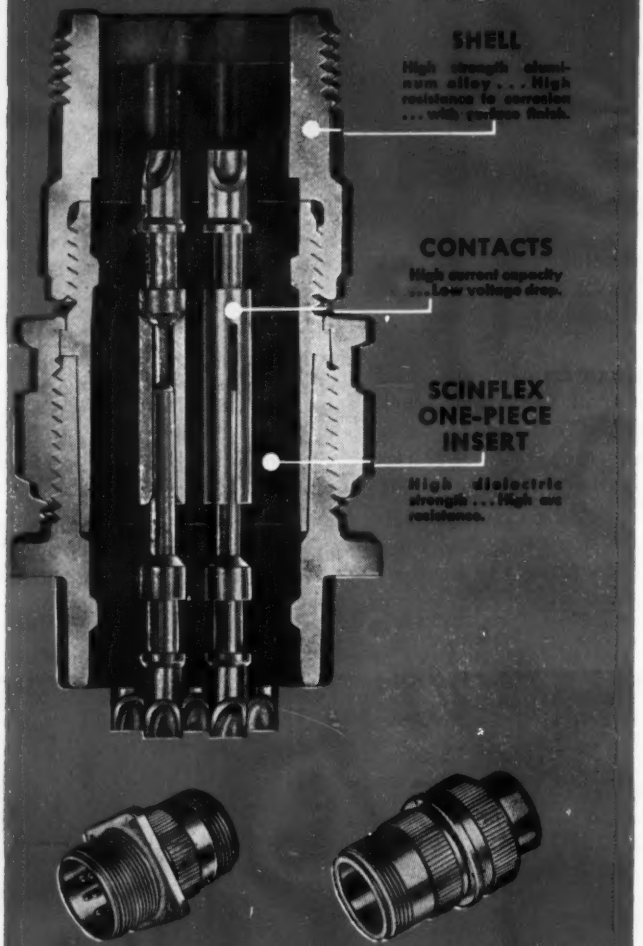
the finest ELECTRICAL CONNECTORS money can build or buy!



AND THE SECRET IS SCINFLEX!

Bendix-Scintilla* Electrical Connectors are precision-built to render peak efficiency day-in and day-out even under difficult operating conditions. The use of "Scinflex" dielectric material, a new Bendix-Scintilla development of outstanding stability, makes them vibration-proof, moisture-proof, pressure-tight, and increases flashover and creepage distances. In temperature extremes, from —67° F. to +300° F., performance is remarkable. Dielectric strength is never less than 300 volts per mil.

The contacts, made of the finest materials, carry maximum currents with the lowest voltage drop known to the industry. Bendix-Scintilla Connectors have fewer parts than any other connector on the market—an exclusive feature that means lower maintenance cost and better performance.

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Write our Sales Department for detailed information.

• Moisture-proof, Pressure-tight • Radio Quiet • Single-piece Inserts • Vibration-proof • Light Weight • High Arc Resistance • Easy Assembly and Disassembly • Less parts than any other Connector

Available in all Standard A.N. Contact Configurations

BENDIX SCINTILLA — SCINTILLA MAGNETO DIVISION OF SIDNEY, N. Y.

the port wing, a camera gun in the starboard wing, provision for bomb carriers, and glider towing equipment.

Holdup in production of the Mk. I is due to the lack of production Mamba turboprops, and the present order for 20 test and pre-production Athenas will be filled by Mk. II models with 1280 hp. Rolls-Royce Merlin 35s.

This version is likely to continue in production until the turboprop becomes available in numbers, but the Mamba-powered Mk. I will be the first to fly.

Recent air policy statements made during Parliamentary debates on the 1948-49 air estimates indicate that during the next few years the accent will be on training a highly efficient regular RAF, and in this program, the Athena will take an increasingly large part.

—Roy Cross

Static Elimination

Engineers propose use of polonium, which emits alpha rays, as solution to problem.

Engineers are considering the use of polonium, emitting alpha particles with strong ionizing effect, as a "cure" for aircraft static problems.

Proposals for thus putting this principle to work in aviation have been made to the Aircraft Research and Testing Committee (West Coast) of the Aircraft Industries Association.

▶**Commercial Application**—Suggested techniques have been outlined by K. A. Smith, heading the radioactivity division of Henry N. Beets Co., Los Angeles, western agency of Canadian Radium and Uranium Corp. of New York and Gibbs Mfg. and Research Corp., Janesville, Wis. These organizations market polonium-coated metal bars under the trademark "Alphatron" as industrial static neutralizers.

▶**Alpha Action**—Alpha particle radiation from an Alphatron ionizes surface air which, in turn, discharges static loads carried by surfaces over which the ionized air is passed.

In a recent demonstration utilizing a statically charged gold foil electroscope, blowing lightly across the surface of an Alphatron toward the electroscope terminal gave instant neutralization of the static charge.

▶**Uses Weighed**—Proposals under preliminary study by ARTC are:

• 1. Development of Alphatron for airfoil leading sections and fuselage use to maintain constant static neutralization of the overall airframe in flight.

• 2. Application of Alphatron to plastic radio antenna housings to eliminate localized static causing strong radio interruption.

Smith believes that an effective application of the Alphatron might be to place small units within antenna plastic bubbles and circulate air over the device and around the inner surface of the canopy.

While adoption of an AIA research program on the proposals still awaits confirmation, at least one airline and one aircraft manufacturer have requested special conferences in the matter.

Interest has been strengthened by industrial uses of the Alphatron, chiefly for elimination of static in printing plants and in motion picture and radio recording industries.

► **Other Aviation Use**—Another potential use of polonium in aviation has been suggested by Luminous Industries, Inc., New York, in connection with a recent Civil Aeronautics Administration regulation.

This regulation—No. 273—requires luminous emergency exit markings and passenger evacuation aids on all scheduled and non-scheduled passenger aircraft by August 1st, 1948.

The company's polonium luminous compound is stated to provide a self sustaining source of light of high intensity and weather stability. Unlike other self-luminous compounds, polonium is reported to have no penetrating rays, a factor extremely important in its application.

Thus, signs of extremely high initial brightness can be produced without danger in storage or handling.

Brazilian Wind Tunnels

Brazil's Aeronautical Commission has ordered $300,000 worth of electrical equipment from Westinghouse Electric Corp. for two wind tunnels to be built at a new research center in Sao Dos Campos.

Two 1600 hp. electric motors, one for each of the tunnels, will drive fans capable of generating air currents up to 300 mph. Test sections of each will be 7 x 10 ft.

According to Dr. A. Amorin of the Brazilian Aeronautical Commission, both of the tunnels are expected to be in operation by 1950. One will be used for commercial aircraft development and the other to train engineering personnel.

Profit & Loss

Northrop Aircraft, Inc. reports net profit of $189,454, equal to 42 cents per share, for the six months ending Jan. 31.

Republic Aviation Corp. had 1947 loss, after carry-back tax credits, of $2,079,585 on sales of $38,280,857.

Facts and figures substantiate all statements

Ship: Douglas DC 3
Condition: 400 flying hours. Aluminum surface badly oxidized and streaked
Problem: Clean, remove oxide, brighten, passivate
Material: Cee-Bee A-3

For this production run a standard major scheduled airline DC 3 was used; heavily oxidized, covered with film; dull and streaked after over 400 flying hours through eastern smoke and soot. Cee-Bee A-3 was applied in an engineered cleaning procedure under supervision of a Cee-Bee aviation specialist, by three inexperienced men. The cleaning compound was applied and agitated with long-handled, semi-stiff brushes, in areas of about 6 feet square. Rinsing with low pressure water completed the operation.

RESULTS: The aircraft surfaces were clean, bright and free from streaks. Aluminum was the appearance of new alclad. The ship was more than satisfactory to the scheduled airline engineers. 5 gallons of material were used. The entire operation consumed only 8 MAN HOURS.

This process and materials has been approved by the laboratories of all scheduled airlines to whom it has been submitted.

Find out about other safe, time-saving "Engineered Cleaning Procedures" for all aircraft cleaning problems. Write to

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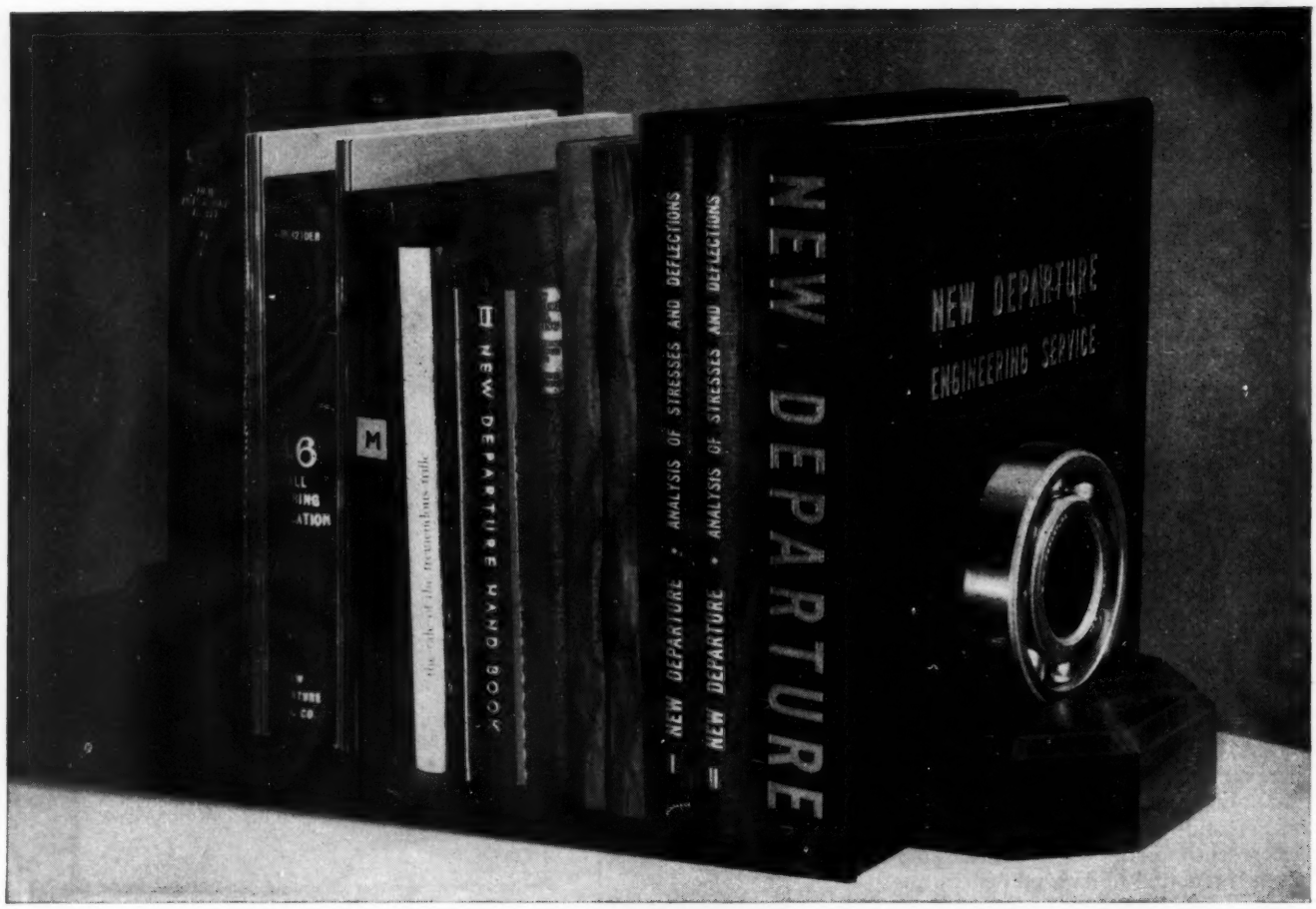
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DD	Details of Design (Part II)
EL	Enclosure & Lubrication (Part III)
LC	Bearing Load Computation (Part IV)
AP	Application Procedure (Part V)
LF	Full Scale Drawings of Bearings
H	Tables, formulae, bearing principles load computation, bearing installation
	MAINTENANCE AND SERVICE
SP	Service Procedure for Ball Bearings
R	Interchangeable Replacement Bearings
RA	Rocker Arm Ball Bearings, Aircraft
SC	Bearing Service Wall Charts
FW	Front Wheel Adjustment Chart
	GENERAL
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IB	Sealed Bearings with provision for relubrication
BM	How Steel Balls are Made
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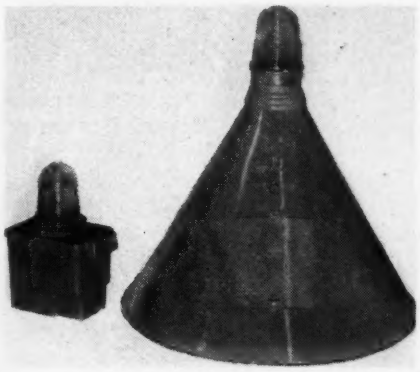


Airport Lights

Flashing portable airport marker lights for identifying temporary obstructions such as runway soft spots, construction work, or damaged aircraft within usable landing area, are offered by **Westinghouse Electric Corp.**, 306 Fourth Ave., Pittsburgh, Pa. Type S-1373146, portable night marker weighs 22 lb.; type S-1373147, cone-mounted combination day and night marker weighs 34 lb. Coiled neon-tube type lamps are powered by standard, dry-type "Hotshot" battery. Red lamp is used for obstruction marking. For other applications, white, gold, green, or blue fluorescent-type lamps are available.

Wire Markers

Adhesive "E-Z Code" identification labels to aid shippers of electrical equipment and disassembled parts are offered by **Western Lithograph Co.**, 600 E. Second St., Los Angeles, Calif. Supplied in card form, markers are easily applied without moistening, by fingertip pressure. Preprinted in numbers 1 to 99, in letters of alphabet, and in ASA and NEMA codes, other marker designations are available to specifications.

New Brakes

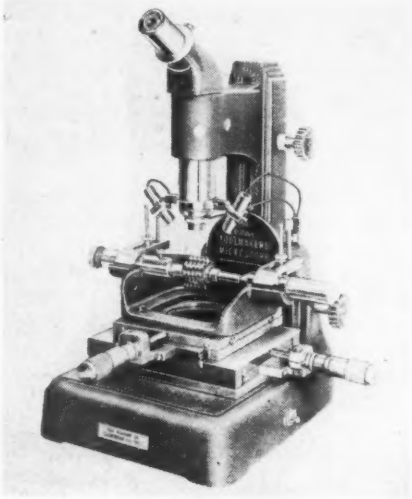
First commercial transport installation of double disk brake is announced by **Aviation Products Div., Goodyear Tire and Rubber Co.**, Akron, Ohio. Unit is refinement of company's single disc brake and is equipped with self-adjusting mechanism. Design permits visual check of lining before flight.

Airborne Tableware

Suitable for use in airliners is new line of dishware made of "Melmac" with appearance of china, but not subject to chipping or breaking. Maker is **Boonton Molding Co.**, Boonton, N. J. Advantages claimed include light weight, reduction of clatter, easy cleaning and stacking, and low-heat transmission.

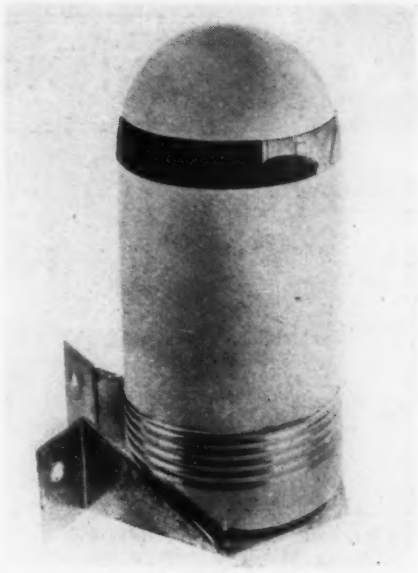
Plug-Type Terminals

"Shur-Plug," solderless terminal for 16-14 stranded wire size, designed for installing or replacing connections on leads in personal aircraft, is offered by **Aircraft-Marine Products, Inc.**, 1528 N. 4th St., Harrisburg, Pa. Application to the wire is accomplished via pneumatic hand tool or by utilizing a foot or power press.



Toolmakers' Microscope

Applicable to aircraft production is toolmaker's microscope providing standard magnification of 30×. Developed by **George Scherr Co.**, 200 Lafayette St., N. Y. C., unit's eyepiece reticule contains 90-deg. hairlines and 60-deg. angle cross for thread measurements. In thread checking, vertical post with microscope and bracket may be tilted to helix angle. Work is either laid on compound measuring stage or held in center cradle. Measurements in two directions are by 1-in. micrometer screws reading directly in .0005 in. Gage blocks may be used in both directions instead of screws. Longitudinally, total range of 2 in. is provided. Afforded is both understage illumination for shadow images and surface illumination for reflected images. Eyepiece image is produced on clear glass reticule for measuring certainty.



Photoelectric Light-Control

Control of aircraft obstruction lights on radio towers and other high structures is offered through medium of new photoelectric device made by **Fisher-Pierce Co.**, 72 Ceylon St., Boston, Mass. Of particular interest to airport officials is "Fail-Safe" feature that keeps light turned on in event of functional failure. Time delay of 15 sec. is incorporated in circuit to prevent it from being turned off at night by lightning, passing lights, or beams that focus on it momentarily. Unit turns on automatically at 35 foot-candles and turns off at 55 candles. Model 61305 is rated to control 500w. of incandescent lamp load; Model 61306, 3000w.

Information Tips

Aircraft Hydraulic Equipment

Issued by **Vickers, Inc.**, 1400 Oakman Boulevard, Detroit 32, Mich., is brochure titled "Hydraulic Equipment for Aircraft." Contained is detailed information on constant displacement piston-type pumps and motors, accumulators, unloading valves, motorpumps, variable volume pumps, balanced piston relief valves, reducing-relief valves, power brake valves (single and double), and pressure reducing valves.

Prefabricated Hangars

Pamphlet offered by **William Bayley Co.**, Springfield, Ohio, describes easy-to-erect prefabricated hangars for private, commercial, or municipal operations. Included is discussion on numerous arrangements that may be derived from standard T-shaped design. Cited are advantages to private owners and field operators. Illustrations and drawings of essential dimensions of hangar are given.

Speed Changers and Tachometers

Metron Instrument Co., 432 Lincoln St., Denver, Colo., offers Bulletin 100 describing miniature speed changers for instruments, controls, regulators, or small power devices. Listed are speed ratios, dimensions, and weights. Bulletin 101 deals with precision tachometers for close-speed measurements in laboratory and test-stand work. Also described are range-extending adapters.

Tokyo Letter:

Facilities Future Puzzles Airlines

Coming Japanese peace treaty poses problem of upkeep of navigation, other services now handled by USAF.

By ALPHEUS W. JESSUP

International airlines are beginning to worry about future operation of navigation, communication and weather services in Japan.

Since the end of the war, the U. S. Air Force has maintained these services as well as the airports and instrument landing equipment. To the extent of its ability, it makes them available to commercial airlines. It is doubtful whether international carriers would be operating through Japan if the Air Force had not been operating here.

The coming peace treaty poses the problem of what happens to these services. The airlines quite obviously cannot bear the expense of maintaining them. They cannot fly to and over Japan without them.

* * *

Alternatives likely to be proposed:

(1) U. S. Air Force units will remain in Japan for the defense of the country. They will operate as an arm of whatever allied control agency is specified by the peace treaty. Probably a United Nations agency will be designated. Most members of the Far Eastern Commission favor long term (minimum of 20 years) control.

(2) A U. S. civil or military commission will be established to supervise Japanese maintenance of the required services. All expenses would be born by the Japanese government through a section of the Ministry of Communications. While the Japanese have lost the right to fly, there appear few reasons why they should not maintain essential ground services for air carriers in the same way that lighthouses and shore facilities are provided for ocean shipping.

The first alternative appears most likely. De-militarized Japan will need some protective force. It is valid to speculate that the U. S. Air Force would prefer to be the defense arm, and it is certainly the only force available for the task.

An Air Force unit in Japan necessarily would require all ground and communications services. It would be in a position to make these services available to international carriers as it has done so far.

There of course is the possibility that this proposition would be ruled out by the allied powers.

Consequently, plans for the other alternative should be formulated soon. Unless this is done, a sudden withdrawal of U. S. Air Forces after the peace treaty will bring trans-Pacific aviation to a crashing halt.

It would be a shame to see the great contribution that the Air Force has made to international commercial aviation dissipated because of lack of preparedness.

Incidentally, that contribution merits a big bouquet for the Far East Air Force, which has performed the services of a CAA-CAB and benevolent uncle to the civil airlines.

For one thing, Pan American and Northwest would have tripled their investment just to get Pacific routes opened.

FEAF offers emergency service and gas at cost. It charges a minimum fee for landing. It makes no charge for weather, communications or air-sea rescue. Furthermore, it fosters the evolution of its 40,000 route-miles of airways from an all-military to a civil-military operation.

As long as large occupational forces remain in Japan, military traffic will be of greater volume. But FEAF wants to see more of the load turned over to the civil lines. For instance, Pan American and Northwest are gradually carrying more military airmail with FEAF blessing.

* * *

Changes in the North Pacific airways are coming about June 1. At that time, the Misawa airbase will open in northern Honshu. Then the Tokyo-Shemya and Chitose-Shemya airways will be discontinued. The main airway will run Tokyo - Misawa - Shemya. Through flights also may go Tokyo-Matsushima-Shemya.

When the Misawa port opens, Northwest will have an additional refueling stop. This will provide an additional turn-around safety factor for the summer-time Aleutian fog season.

British Overseas Airways is anxious to extend its Hongkong to Iwakuni (near Kure) flight to Tokyo, but is stymied by Far Eastern Commission ruling against cabotage rights in Japan.

Operating flying boats, BOAC might cut out its Iwakuni stop and come into Tokyo Bay if it could afford to install a seabase. Since this is unlikely, the alternative would be a shuttle flight from Iwakuni to Haneda (Tokyo's terminal).

That poses the ticklish problem of where cabotage starts.

Kure is the headquarters of British Commonwealth Occupation Forces, but all British traders and businessmen must come to Tokyo. This makes some justification for the British plea for permission to transfer passengers from seaplanes to landplanes at Iwakuni.

However, it would in effect give BOAC the right to bring passengers to two ports of entry in Japan. That is a right which American carriers don't enjoy. They can bring passengers to Tokyo only. Since U. S. headquarters is in Toyko, they haven't much demand for operation to other points. But they will protest any ruling which will give BOAC cabotage rights.

Indian Line Shopping For Additional Aircraft

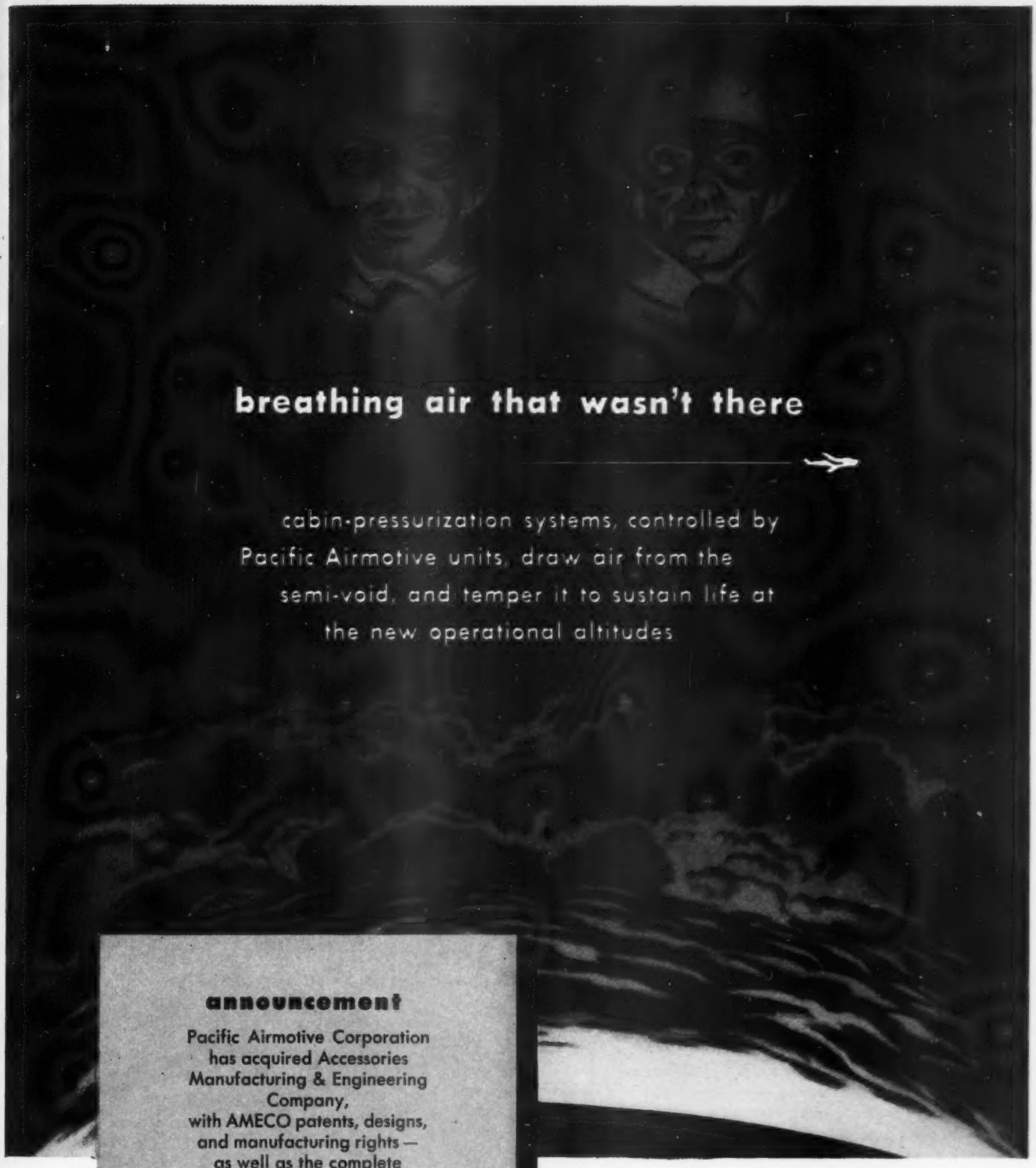
Indian Overseas Airlines, Ltd., is increasing its fleet of U. S. aircraft by five additional DC-3s.

Purchase of two of the planes already has been negotiated by J. P. Koszarek, commercial manager, who is in the U. S. working through Indamer Corp. This brings the airline's fleet to 13 DC-3s. IOA eventually hopes to use DC-4s also.

▶ **Routes**—In addition to a Bombay-Calcutta route, IOA runs from Madras to Nagpur and from Bombay to Lucknow. It is also operating routes to Nairobi on a charter basis. Average route mileage daily totals 5,800 miles. Air travel rates, which are fixed by the Director General of Aviation, amount to 12¢ per mile.

Lack of equipment and trained personnel has been a retarding factor in the growth of cargo-handling in India, Koszarek reports. IOA does anticipate, however, the development of an air freight department and has extensive plans for its organization in the future.

▶ **Officers**—Officers of IOA in addition to Koszarek, include: M. V. Parekh, general manager; M. V. Namjoshi, operations manager; S. V. Iyer, resident director; and J. M. Akhaney, chairman of the board of directors.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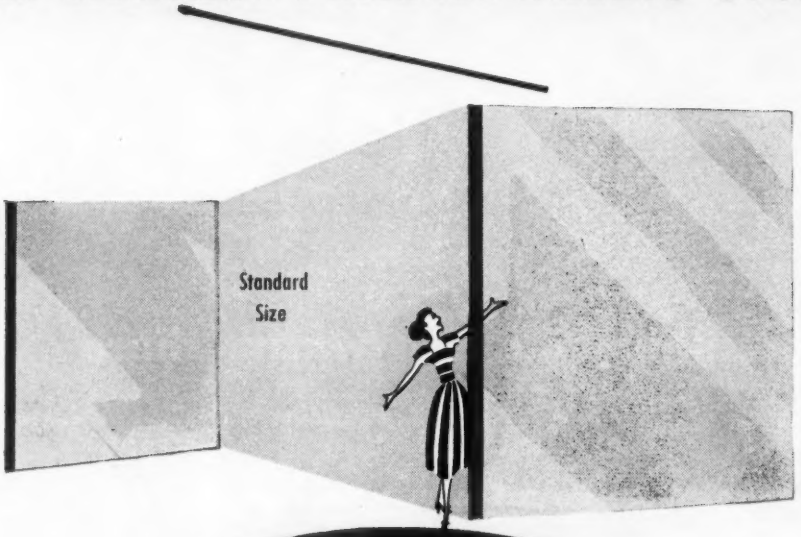

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LETTERS

Ultrasonic & Supersonic

To the Editor:

Your issue of March 22 brought to my attention again a confusing situation which exists apparently throughout the aircraft industry in the use of the words "ultrasonic" and "supersonic." Though I have no specific evidence to prove the point, I feel sure that all those who have occasion to use one term or the other should come to some agreement on differentiation between their definitions.

The use and study of sound waves whose frequency is greater than that audible to the human ear should be referred to as ultrasonic waves. The study of air moving at velocities greater than its own local velocity of sound relative to some reference point should be termed supersonic flow. The difference exists, of course, in that ultrasonics refer to wave frequency whereas supersonics refer to mass velocity.

F. A. CLEVELAND
Aerodynamics Engineer
Lockheed Aircraft Corp.
Burbank, Calif.

Wind Shifts & Stalls

To the Editor:

In a recent editorial you praised the stall warning devices now being used in many aircraft. I heartily endorse such equipment but I think we should go a step further and consider why stalls seem to occur at low altitudes and generally on approaches to the landing strip.

For many years I have had a theory concerning this and as a soaring school operator I am convinced that the average power pilot is not taught enough about wind shifts and gusts at low altitude. For example, the average light plane pilot is taught to glide his aircraft, which normally lands at 40-45 mph., at 60-65 mph. This we have found to be a good speed under only the best of conditions, namely, very stable air.

At our school on the desert we have encountered wind shifts at ground elevation which did change the prevailing wind direction for as much as 30 seconds from a head wind of 20 mph. to a tail wind of the same velocity. It is apparent what can happen to a light plane which is approaching the field in a normal glide at 60 mph. A meteorological element known as a thermal (and they exist all over the world) can cause that plane to indicate a flying speed of 60 mph., and within a matter of seconds cause a wind shift of 180 deg. with an indicated airspeed (in the airplane) of only 20 mph. If this reversal of wind exists over any large area ahead of the landing airplane, stall warning devices and such will be of no avail. The pilot can hit the throttle and still will crash.

An example of this is a recent landing by a friend of mine in an Ercoupe in which this airplane was completely demolished. His statement to me was that he was making a standard approach into his home field in very turbulent air when suddenly the plane stopped flying and he crashed from about 40 ft. Fortunately, neither he nor his companion were seriously hurt, due to a large mound of freshly heaped earth into which his plane plummeted. I wish my friend had been a glider pilot because I think this condition would have been avoided.

As you probably know, gliders and soaring ships fly very close to the stall point for "minimum sink." As a result, the experienced soaring pilot is always on his toes watching for a stall indication. This can come when passing into a down draft or close to the ground due to a reversal of wind direction caused by thermal activity.

Since the experienced soaring pilot is very familiar with these conditions we have established a general let-down procedure: Upon entering the landing pattern, the speed of the glider or sailplane is increased approximately 25% above the cruise speed. For example, a glider which stalls at 35 mph. may be cruised around 40 mph. Therefore, at 500 feet, the pilot automatically increases the speed to 50 mph. This speed is adhered to completely until the glider is flared out for a wheel landing.

We do not advocate stall landings except in emergency. If the air is turbulent to any degree, the student glider pilot is cautioned to increase his let-down speed at least 10 percent more which would, in this hypothetical case, be 55 mph.

If the air is very turbulent, the speed should be further increased and only wheel landings attempted.

As a result of this procedure we have turned near accidents into safe landings. One of my students was making an approach to the dry lake immediately adjoining our field. He was 2000 ft. from the end of the landing strip and about 200 ft. above the terrain which put him 400 ft. above his landing field. There was a 20-mile wind blowing and the student had been slope soaring. A student was gliding in relatively fast. Suddenly we saw the ship point down toward the ground at a 45 deg. angle.

It continued its dive and leveled out just above the sage brush. The ship continued to mush on into the ground striking on its main landing wheel and we started on a run for what we thought was a serious accident (there were four other witnesses).

Before the dust had cleared we noted the glider in the air at about 75 ft. The pilot nosed it down very abruptly and, strange as it seems, made it in safely to the very edge of the landing area. Upon reaching him and questioning his maneuvers I was told that his approach speed had been 70 mph. due to the severe turbulence and that suddenly he had no indicated airspeed whatever.

When flying through down drafts each student is told to increase speed by diving and to go through these areas as rapidly as possible. This chap's immediate reaction was that he was in a down draft and he pushed the stick foreward hoping to escape this area without too much loss in altitude. His airspeed still continued below the stall and only when he was a few feet off the ground did he attempt to level out. He said he felt the shock of landing and the next moment saw his airspeed at 75 mph. and he was quite some distance above the ground. He then proceeded on in to land.

Many pilots have been taught that there is no such thing as a down draft close to the ground but they also fail to recognize that there can be a reversal of wind direction which can cause just as much trouble as a down draft at low altitude. As a result of our investigation of the student's near accident we know the following occurred:

A relatively large thermal was moving toward the glider with the prevailing wind and as a result its upward development was causing air to be drawn toward its base which resulted in a violent wind shift on the lee side of the thermal. The pilot entering this area lost air speed from 70 mph. to an estimated 20 mph. and just as he contacted the ground he entered the core of the thermal. His wings being at a high angle of attack and the inertia developed by his dive caused the sailplane to climb rapidly in this area of lfit and strong head wind. He thereafter continued through the thermal and into the normal prevailing wind.

An associate of mine, Mr. M. E. Powell, had a similar experience just last week in his Aeronca trainer. While approaching our airport he had an indicated airspeed of 70 mph. The next instant his airspeed was 30 mph. indicated. Fortunately, he was making his approach under power and passed through this area of wind reversal before he touched the ground, just managing to clear the end of the runway by about five feet. I don't want to give the impression that our particular area is dangerous since I have flown all over the United States and soared in many locales. However, I find these conditions in many places.

I would like to get across that the average power pilot is still quite mechanical and unfamiliar with the type of meteorological conditions discussed above so that when he gets into a predicament of the type mentioned, he is at a loss as to his procedure. It happens so quickly that the pilot's automatic reaction is to pull the nose up.

This is the wrong thing to do and results many times in a fatality. I would suggest that the following procedure be followed by power pilots when landing on unfamiliar fields or under even slightest turbulence.

A faster approach to the field with, preferably, a wheel landing. It also would be well for all pilots to take a little soaring flight instruction. As you probably know, Germany required all transport pilots to take five hours or more solo soaring each year as one of the requirements for maintaining their license. The attitude of many power pilots concerning soaring planes is that they would rather have an engine help ing them along.

My attitude with this type of individual, and there are thousands of them, is that they are not confident of their own piloting ability nor are they at home in the air. A little instruction in thermal structure, wind reversals, their cause and possible effect can go a long ways toward making safer pilots.

WILLIAM G. BRIEGLEB
Briegleb Aircraft Company
Adelanto, California

CAB Peers Into "Big Five" Future

Analysis of mail rate action shows controversy ahead on Board approach to the problem of permanent rates.

Among key elements in the recent Civil Aeronautics Board mail rate action on the "Big Five" are detailed studies encompassing an analysis of future operating results.

Forecasting trends in any industry is difficult. It is particularly hazardous in air transportation, where there are so many variable factors in which the smallest deviation can exert a major influence.

Regardless of how soundly conceived, the detailed projections of the Board can be expected to be contested by the carriers involved if for no other reason than differing approaches to the outlook for the future. As the Board's proposed temporary mail rates for the "Big Five" are premised on its projection of operating results, it is in this realm that the elements leading to the setting of permanent rates will be resolved.

▶ **Long-Range Forecast**—In estimating future operations, the Board declared that such results are not necessarily expected to be realized in the calendar year 1948, but are believed a reasonable estimate for an appropriate period to be contemplated in establishment of future service mail rates. Despite this disclaimer, the pattern may very well belong to the current year.

An increase in passenger miles is expected to average 10 percent for American, Eastern, Northwest and TWA. United is expected to show a gain of 16.4 percent, presumably because of its Hawaiian operation. Mail ton miles are also expected to show an average increase of 10 percent for all carriers except United, which again is higher. Freight ton miles are expected to record increases ranging from 61.7 percent for TWA to 120.4 percent for Northwest. It is probable that these estimates may go unchallenged by the carriers.

▶ **Load Factors**—Considerable controversy, however, may be expected to greet the Board's ideas as to potential passenger load factors. American, Northwest and TWA are expected to average a 70 percent load factor, United 72 percent and Eastern 65 percent. These estimates are keyed to actual results for the 12 months ended Sept. 30, 1947. Similar expectations for the future may be too high in the opinion of observers. For example, average load factors may decline while general passenger traffic may increase merely because of the availability of more planes and the increased capacities of the new equipment. As the 36 passenger Martin 2-0-2 and 40 passenger Convair 240 replace the 21 place DC 3, this decline in load factors may be more evident.

In its expense calculations, the Board, for purposes of depreciation, used a four-year service life for the DC-4 and seven years for the DC-6 and Constellation. Actually, however, Eastern is depreciating its Constellations over a four-year period and is alone in this respect. Eastern and Northwest are using a two-year service life on its DC-4s and American three years. United is alone in applying the four-year period.

▶ **Investment Base Studied**—The investment bases of the "Big Five" received careful scrutiny and were marked down to levels considered essential by the Board to domestic operations. All investments in and advances to affiliates and separately operated divisions, and funds for the purchase of equipment not reflected in estimates of operations, have been eliminated in this adjustment process. Also excluded were non-operating property and equipment, unamortized debt and discount, deferred development expenses and similar intangibles.

The greatest relative reduction was effected in the accounts of United, in the recognition of about $58 million of a reported investment of over $72 million. Much of this elimination was due to the company's investment in LAMSA and such intangibles as the excess price paid for Route 68 over the cost of the tangible assets acquired. While American's investment base was reduced from more than $104 million to $71.2 million, more than $13 million was represented by its interest in American Overseas Airlines in which a return is anticipated from other directions. Northwest and TWA had their investment bases virtually halved largely because of the allocations made to their foreign operations.

▶ **Equipment Question**—The exclusion of equipment purchase funds from allowable investment accounts may be strongly contested by the carriers affected. The question raised probably will be: How can the Board give active consideration to the benefit of increased earnings flowing from new type equipment without making provision for the financing of such planes? The Board may have anticipated this in its statement: "The added revenue generating characteristics and the lower available ton-mile cost characteristics of the new aircraft types should more than offset any margin of error inherent in our failure to make allowance for the depreciation and capital costs related to such equipment." This promises to be a moot point.

Marshalling all factors in place, the Board concluded with its estimate of reasonably attainable operating results for the future period contemplated under conditions of economical and efficient management. The uniform service rate formula was accordingly applied to the "Big Five" with this background.

The effect of these rates along with the summarized findings of the Board are shown in the following table:

CAB Allowable Investment Bases And Anticipated Earnings

Carrier	Allowable Investment	Net After Taxes	Percent Return
	(000 omitted)		
American ..	$71,208	$5,433	7.63
Eastern ...	26,055	9,409	36.11
Northwest .	12,177	1,445	11.87
TWA	34,367	4,349	12.65
United	58,082	4,727	8.14

It is evident that Eastern appears to be in the most favored light with an indicated return of 36.11 percent on the investment. It is interesting to observe that the remaining four carriers show close proximity in the estimated return on the investment.

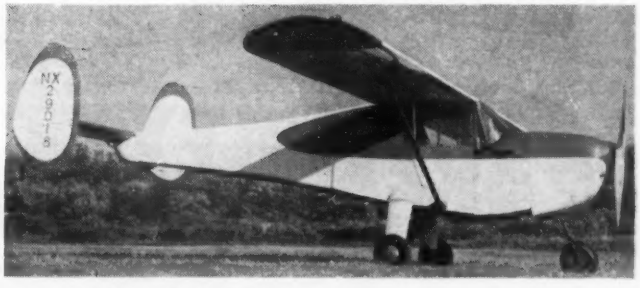
▶ **Board Omission**—Should these estimated earnings actually eventuate, they will have varying effect on the capital structures of the separate companies. In this respect the Board made a serious omission in computing net earnings. For example, in the case of American, the projection showed net operating income of $8,763,000 with a straight 38 percent deduction for income taxes. However, prior to any tax payment, the company can show a tax deduction of $1,200,000 representing interest on its debentures. This reduces the amount available for the equity to $4,589,000 after a tax payment of only $2,974,000 instead of the $3,330,000 shown by the Board's figures.

In any event, the Board's projections represent a bold and courageous attempt to spell out its course of action and provide the carriers with a basic set of conditions which they can counter with facts.

—Selig Altschul

Chrislea Super Ace in flight

Auto-type cowling for accessibility



Lookalikes—Super Ace and prewar American Skyfarer

Competition From England

Chrislea Super Ace, new $7500 four-placer, offers many new features to lure export market away from U. S.

(*McGraw-Hill World News*)

LONDON—New competition in export markets for American personal planes is offered by the Chrislea Super Ace, 145 hp. four-placer now in production at Exeter Airport, Clyst Honiton, Devon. Developed from the 100 hp. Chrislea Series I Ace prototype which flew in August, 1946, the Super Ace is designed for air taxi and executive transport or for light cargo uses. It is described as unusually easy to fly, with a simplified wheel control and foot accelerator arrangement as highlights of the four-place craft.

Price-tagged at $7500 complete with dual controls, blind flying instruments and Goodyear hydraulic brakes on the fixed tricycle landing gear, the plane is likely to offer stiff competition for even the lowest priced American four-placers, when shipping costs, duty and other export costs are added to the current flyaway prices.

The high-wing twin tail plane bears close resemblance in its lines to the prewar American two-control Skyfarer, built by General Aircraft, from a design by Prof. Otto Koppen. However, the Super Ace appears to be cleaner in design. It also has transparent plastic all around the passenger area, for 360 degree visibility.

In first test flights of the No. 1 production Super Ace, Rex Stedman, test pilot, flew it for 50 minutes, then tried to spin it, and reported that the most it would do was a steep spiral turn, which corrected itself with release of the controls. As a final test, he moved into a back seat and let the plane fly hands off.

► **Gypsy Engine**—Prototype Chrislea Ace was powered with a 125 hp. Lycoming engine, with later planes scheduled to use a new 100 hp. Monaco British-built engine. However, the Super Ace is now fitted with a 145 hp. De Havilland Gypsy Major X, which has been adopted as the standard powerplant.

Plane now has a full British airworthiness certificate and when carrying two occupants, it is approved for aerobatics.

Performance figures quoted include top speed of 126 mph., cruising speed of 115 mph., range of 420 miles with four passengers, on normal fuel supply of 25 gal. A "slipper-type" belly tank which adds 20 gal. more of fuel capacity, increasing range to 750 miles, is designed for easy attachment under fuselage.

► **Tubing-Fabric Construction**—Construction is steeltube, fabric covered, except for leading edge ailerons, large split flaps, and tail assembly, all of which are metal covered.

The flaps of all-metal stressed-skin construction work through 60 deg. at infinite settings by means of push rods actuated from a screw-jack situated centrally over the instrument panel.

► **Sturdy Undercarriage**—Undercarriage, with a wheel track of 6 ft. 9 in., has

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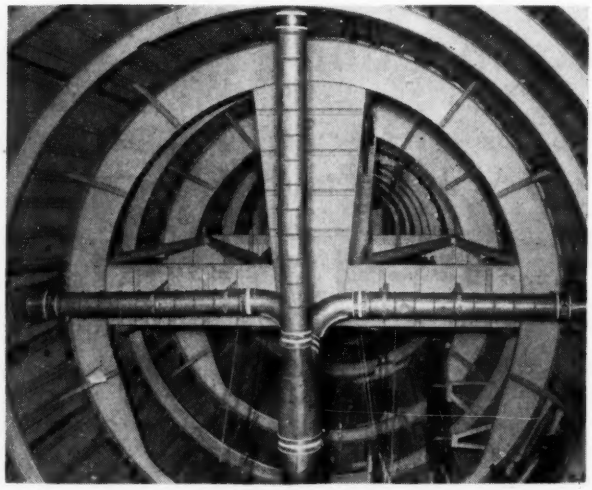

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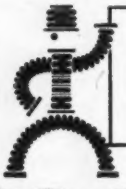

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been considerably strengthened, as a result of extensive trials, to reduce maintenance to a minimum. Under stiff cross-wind conditions (at velocities up to 20 mph.) it has been found free of shimmy and with no tendency to swing on takeoff or landing. All three legs are fully cantilever in design, of welded steel tube construction. Shock absorption is by means of rubber cords in tension, which can be replaced in a few minutes without any special tools. Nosewheel casters through 30 deg. and has a stone-guard which effectively protects the propeller from chipping. Rear wheels, which carry 17-in. treaded tires, are fitted with Goodyear platetype hydraulic brakes, which operate differentially from the brake-pedals, and thus ensure precise maneuverability on the ground. A hand-brake is also provided for parking, and permits the engine to be revved up without the need for wheel chocks.

▸ **Dual Controls**—The Super Ace comes regularly equipped with dual controls, each of these being of the single-wheel and column type with an over-riding foot accelerator. Either of the two control columns can be detached at the universal ball-joint mounting, and both give full control over ailerons, elevator and rudders with fatigue-free movements familiar to every motorist.

▸ **Cargo Floor**—The sturdy double panel shear-floor of the passenger compartment in the Super Ace is stressed to take concentrated loads. By removing rear seat, and utilizing roomy luggage compartment, the plane can be converted in a very few minutes into a freighter, capable of lifting 610 lb. of freight, and with a capacity of 45 cu. ft. Wide, unobstructed doors make loading easy, as does the level floor only 20 in. above the ground.

▸ **Other Specifications**—Weight empty, including full equipment, is 1344 lb. Allowing 680 lb. for the pilot and three passengers, 181 lb. for 25 gal. of fuel, 31 lb. for 3.5 gal. of oil, and 115 lb. for luggage, the normal all-up weight is 2350 lb.

With a wing-span of 36 ft. and a wing-area of 177 sq. ft., wing loading is 13.3 lb. per sq. ft. Length is 21 ft. 6 in.; maximum height over wing-tips is 7 ft. 2 in. Tailplane span is 8 ft. 11 in.

At full load, the Super Ace climbs at 800 ft. per min.; light, it climbs at 1350 ft. per min. Takeoff distance, allowing for a 5 mph. wind, is 160 yd.; landing run, with the same wind, is 100 yd. This combination makes the plane safe and effective to operate from small fields or landing strips. Service ceiling is 16,000 ft.

Cruising at 115 mph., fuel consumption is 6½ gal. per hr. or the equivalent of 18 air miles per gal.

Roosevelt Field Reports Salaries

Roosevelt Field, Inc., Hempstead, N. Y., disclosed in its annual report for the fiscal year ended Dec. 31, 1947, that W. D. Guthrie, president, treasurer and director, received a salary of $10,520 last year.

Two other top executives whose salaries were listed were J. G. Stevens, vice president and secretary, who received $5849, and Leslie C. Ost, assistant treasurer, $4650.

The company has 500,000 authorized shares of $5 par value common stock of which 300,100 shares are outstanding, the report disclosed. The Aviation Corp., New York, owns 60,000 shares or 19.96 per cent of the outstanding stock; Albert C. Loening, a director of the company, owns 31,000 shares or 10.33 per cent; and Grover Loening, a director of the company and chairman of the board of directors, owns 35,000 shares or 11.64 per cent.

During the war, according to the report, the company was "almost exclusively" engaged in activities required by the armed services. Since the end of the war it has continued in airport and school operations and conversion to other peacetime activities.

As of Dec. 11, 1947, the company sold approximately 245 acres of land, a hangar and a raceway, including grandstands, which had been under lease to the Old Country Trotting Association, Inc. The company received $950,000 for the property, $200,000 in cash and $750,000 in a ten-year (amortizing) mortgage at 5 per cent interest.

The company retains approximately 250 acres of improved airport facilities together with buildings, roadways, runways, fences, drainage systems and so on.

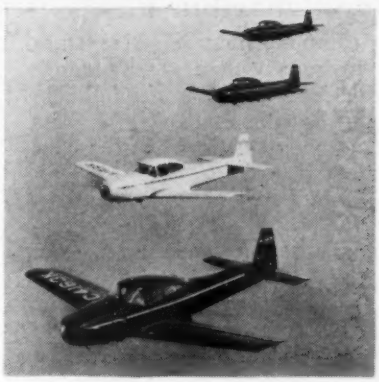
For the Air Tourist

Two new vacation facilities for the air tourist have been opened in Washington state, with R. Hugh Warnick having completed the Warnick Guest Ranch Airport north of Naches and Irvin L. Mosier developing an airfield on the Olympic Peninsula.

Mosier's airfield will be 1800x400 ft. when completed. Cabins will be built along the Little Quilcene River, bordering the airport, so the pilot may taxi to his very doorstep. A 500-acre recreational area will include golfing, swimming, fishing, hiking and scenic trips.

1948 RYAN NAVION

Roominess and attractive interior furnishings of the 1948 Ryan Navion are shown to advantage in this cutaway photo of the four-placer. Ryan Aeronautical Corp. has lined up a flight of new 1948 four-place Navions in the four alternate paint jobs offered to make this striking formation picture at San Diego (right). Colors are oxford maroon, catalina tan, zircon green and chevron blue, with contrasting striping. Powered by 185-hp. Continental engine, the Navions climb at 830 fpm. Stalling speed is 54 mph.



Double Wheel Gear Shown on Bellanca

New type of lightplane crosswind gear demonstrated at Washington National airport recently by Bellanca Aircraft Corp., under CAA contract, uses smaller dual wheels on each of the main landing gear legs. The only type of castering gear with this feature yet developed in the CAA program, the Bellanca gear swivels inside its oleo strut. Rubber shock cords hold it straight except when sufficient force is put on it in a crosswind takeoff or landing. Then it will swivel 30 degrees on either side of center.

The double wheel arrangement was effective in eliminating shimmy on the gear, without the use of any other device. It also offers other advantages. The smaller wheels can be retracted further into the relatively thin Bellanca wings, and they give the plane better traction on muddy fields. The experimental model shown was built under a 50 hour contract for use of the aeroplane.

Bellanca officials have not yet indicated whether they plan to put this gear into production for optional equipment. Basically it is one of the simplest castering gears. It uses virtually standard 5.00 by 4 Hayes wheels. The experimental design was not made retractable, but this feature could be added with relatively slight changes to the wing wells.

ILS for MacArthur Field

Full commissioning of MacArthur Field's Instrument Landing System is expected within two weeks and should throw the Sayville, L. I., N. Y., base open as an alternate airport in the New York area.

The landing system has been in operation for several months, for training, familiarization and shake-down tests.

Construction work is planned on the terminal building at MacArthur Field with an eye toward attracting some of New York's commercial air traffic.

BRIEFING FOR DEALERS & DISTRIBUTORS

AIRMARKING OR NOT—In spite of all the ballyhoo on Wright Skyway (Skyway No. 1) and the other proposed contact flying routes for private flyers, their ultimate value depends first of all on whether the aviation people along the routes get together and put up some airmarkers. After going along with the skyway projects since their beginning last summer, we have concluded that the chambers of commerce and local civic groups have been doing a terrific amount of "cackling" considering the very little amount of "eggs" in the form of airmarkers which have been laid so far. It is up to them within the next few months of the current summer to "put up or shut up."

FLYING TOURISTS—Admittedly there are not yet huge swarms of flying tourists to use such aerial skyways. But more than 100 private planes flew into Dayton for the Wright Skyway dedication recently, and 220 to the Washington D. C. celebration. How many Oklahoma City had has not yet been reported, but considering the expansive promotion of the "Oke" City affair and the greater interest in flying in the plains area, it was probably much greater. Probably there were well over 1000 private planes trying out various segments of the skyway last week, in spite of CAA's warning that few markers are available along the route.

DOOLITTLE'S PREDICTION—Speaking at the Dayton celebration, Jimmy Doolittle, Shell Oil vice president, predicted that the future development of the private airplane would follow a pattern very similar to that of the automobile. He attributed the postwar collapse in the private flying boom to an inflationary spiral, inadequate equipment and facilities to handle the people who wanted to fly, and lack of utility in personal aircraft. "Most certainly, a lack of genuine interest and enthusiasm for flying was not responsible for the deflation," Doolittle declared. He went on to predict that private flying's growth will not only continue but will be accelerated and that American engineering genius will produce on a mass production basis a safe, dependable family plane, with initial price and maintenance cost within reach of the average citizen.

REPLACEMENTS NEEDED—Delos W. Rentzel, CAA Administrator-nominee, who was principal speaker at the Washington celebration, pointed out that more than 3600 airmarkers which were installed before World War II, had been obliterated for security reasons, and is a setback which national airmarking has not yet overcome.

WEATHER DRAWBACK—Admittedly the winter weather has been a drawback to local community enterprise. A few markers were put in last Fall on the original impetus of the September Los Angeles-Washington survey flight. But the next few months will tell the story whether the Wright Skyway and other skyways are just a chamber of commerce publicity stunt, or will be of some lasting value to aviation and a real contributing factor to the growth of private flying.

POOR COORDINATION—An apparent lack of coordination between CAA and the states and local communities on exchanging information about progress of the airmarking may have something to do with the apparent lag in accomplishment thus far. A competent Oklahoma City reporter wrote that more than 200 airmarkers had been painted on rooftops in his state in the past few months, "many of them designating Skyway No. 1." Almost simultaneously a CAA spokesman said that "Oklahoma City Chamber of Commerce thinks there are 14 markers along Oklahoma's portion of Skyway No. 1, but has not yet confirmed it." Presumably a lag between painting the markers and reporting them for designation on CAA charts is responsible for the discrepancy.

AVIATION'S PART—The various branches of commercial aviation can and in a few cases are doing quite a bit of the work for airmarking in their respective communities, but there are many communities where informed leadership is lacking and no airmarkers are planned. There are few communities so shortsighted that they will fail to put in markers if they understand that they are roadmarking a route for air tourists which in future years—as that traffic grows—will bring many tourist dollars into the community. But unless they have some aggressive, informed leadership for this relatively simple task many of these communities will pass up the airmarking.

NOW OR NEVER—As to the Wright Skyway, this particular route has had a good sendoff, publicity wise, but unless full advantage is taken of this publicity within the next few months, the effort is wasted. Before we have any more chamber of commerce glorifications, it would be well to get the paint crews organized and actually fill in some of the many gaps along Skyway One.

—ALEXANDER McSURELY

AIR TRANSPORT

End in Sight for Freight Rate War

Independent freight carriers backed in CAB's floor under tariffs and examiner's support of forwarders.

By CHARLES ADAMS

The end of cut-throat rates in the airfreight industry apparently is in sight.

CAB, in a tentative decision, has set a floor under freight charges. The Board's move was strenuously opposed by the certificated airlines but vigorously supported by the larger independent airfreighters.

▶**Freight Forwarder Case** — Another boost for the uncertificated cargo lines —and probably for the whole industry— coincided with the decision on freight rates. A CAB examiner came out strongly for granting freight forwarders the right to operate in air transportation.

In the majority opinion on freight rates, CAB Chairman Joseph J. O'Connell, jr., and Members Josh Lee and Harold Jones found that current air cargo tariffs endanger the sound development of the industry. Neither CAB Vice Chairman Oswald Ryan nor retiring Member Harllee Branch participated in the decision.

▶**Rates Too Low**—The Board said evidence gathered in its investigation of freight rates indicates that present charges do not compensate the carriers either for their current costs or for lower costs that might be attainable. CAB then prescribed minimum rates of 16 cents a ton mile for the first 1000 ton miles in any one shipment and 13 cents for all ton miles in excess of 1000 in any one shipment.

In the past, freight rates on the uncertificated lines have ranged down below eight cents a ton mile, while minimum charges by the certificated carriers went below 13 cents a ton mile. CAB public counsel recently urged the Board to set an industry-wide minimum rate of 16 cents a ton mile for shipments up to 2000 lb., 14½ cents a ton mile for shipments above 2000 lb. and 13 cents for shipments above 16,000 lb. (AVIATION WEEK, Apr. 5).

▶**Comparison Made**—CAB found that the rates of certificated carriers are lower than those of uncertificated lines for shipments in weight categories constituting a large proportion of total freight traffic.

"This condition, together with a general level of rates below cost, eventually would lead to the financial inability of the uncertificated carriers to remain in operation," the Board asserted. It added that while the carriers' freedom to exploit the potentialities of airfreight should be protected to the fullest extent, the destructive aspects inherent in present and proposed tariffs dictate the taking of some effective regulatory action.

▶**Valuable Experiment**—CAB emphasized the importance of finding out whether a specialized airfreight industry can be developed without subsidy. The Board said it recognized the value of this experiment last June when it granted uncertificated cargo lines the right to operate as common carriers under Section 292.5 of the Economic Regulations. "It is our opinion that to undermine the experiment now by permitting undue competitive pressures to drive down rates would be contrary to the public interest."

The Board flatly rejected the "no-cost" theory of some certificated airlines which contended that freight carried in the unused space on passenger flights is entitled to a free ride since ground and flight personnel and equipment would be there anyway. Figures were cited to show that not only the independents but American Airlines, United Air Lines and TWA, among others, lost money on freight last year.

▶**Best Guide**—"It is our conclusion," CAB declared, "that the costs of the uncertificated cargo carriers are the most usable guide in determining the reasonableness of the rates under investigation." In the third quarter of 1947, the Board found that freight costs averaged about 11 cents per available ton mile and around 16 cents on the basis of

Ranking of "Big Five" Airlines

CAB, in its recent decision offering the nation's five largest domestic carriers mail pay increases (AVIATION WEEK, Apr. 19), classified American Airlines, Eastern Air Lines, Northwest Airlines, TWA and United Air Lines as unsubsidized operators. The Board said these companies have reached a status where self-sufficiency is reasonably attainable under honest, economical and efficient management without more than a "service" mail pay rate from the government. Ranking of the "Big Five" according to favorable operating characteristics is shown in following table:

	American	Eastern	Northwest	TWA	United
I. Size and Volume Factors					
Total revenue ton-mi.	1	4	5	3	2
Route mi. in operation	2	3	5	4	1
II. Density and Plant Utilization Factors					
Revenue ton-miles per route mi. per day	1	4	5	3	2
Revenue ton-mi. per station per day	1	4	5	2	3
Average daily one-way trips	3	4	5	2	1
Route mi. per station	3	5	2	1	4
Pass. load factor	3	5	3	3	1
III. Operational Factors					
Average length of pass. trip	5	4	3	1	2
Average length of hop	4	5	3	2	1
Performance factor	3	4	2	1	5
Pass. revenue yield per pass. mi.	4	1	2	3	5
IV. Mail Volume and Density Factors					
Mail ton-mi.	3	4	5	2	1
% mail to total revenue ton-mi.	4	5	3	1	2
Mail ton-mi. per route mi. per day	3	4	5	1	2
Av. mail load per plane mi. in mail service	4	5	3	1	2

Based on Estimated Operating Characteristics for Future Period

experienced load factors. But expenses have risen considerably since that period.

CAB emphasized that the fixing of general minimum rates cannot assure profits. The Board left the carriers freedom to work out and adjust their rate structures above the rate floor set.

▶ **Need for Forwarders**—Meanwhile, in his report on the freight forwarder case, CAB examiner J. Earl Cox declared extensive justification for indirect carriers exists in air transportation. He said the forwarders have proved their worth in surface transportation.

Cox said there is no doubt that air-freight forwarders already have handled substantial volumes of business despite doubts as to the legality of their operations. Some forwarders had stated they turned down large amounts of traffic because of their uncertain status under the Civil Aeronautics Act.

The examiner's report asserted that the public interest in, and need for the services of airfreight forwarders was established by witnesses representing major business organizations, associations of commerce and the armed services. The all-cargo lines confirmed the need for indirect carriers, stating that the forwarders would be able to tap untouched cargo potential with their large soliciting organizations.

▶ **Opposition Strong**—Certificated carriers unanimously opposed the entrance of forwarders into air transportation. They cited evils in the operation of forwarders in surface transportation, adding that when their cooperative ground service organization, Air Cargo, Inc., is fully activated the services of neither the forwarders nor Railway Express Agency will be necessary.

Cox said that even if Air Cargo, Inc., accomplishes the goal it has established for itself it will still fall short of rendering the services now performed by REA and which will be offered by forwarders.

▶ **Recommendations Made**—The examiner recommended that CAB issue an exemption order permitting freight forwarders, including those with surface carrier affiliations, to engage in air transportation. He urged that Railway Express Agency be permitted to continue operations under an amended exemption order authorizing it to use the facilities of uncertificated cargo carriers as well as those of the certificated airlines.

Cox said the Board should deny REA's request to engage in the movement of freight as an indirect carrier, "since it appears desirable to maintain the distinction between air express and airfreight. He recommended that CAB ask Congress to amend the Civil Aeronautics Act to provide for issuance of permits to airfreight forwarders without a showing of public convenience and necessity.

Newark Airport's present layout.

$50 Million Face-Lifting at Newark

New York Port Authority takes over field and plans seven-year improvement project to increase capacity.

By STANLEY L. COLBERT

Newark Airport is scheduled for a $50,000,000 face-lifting by the Port of New York Authority.

The Port Authority took over Newark on Mar. 22, and plans to add 800 acres to the existing 1400 acres. They will provide another 500 acres for hangars, shops, and buildings for maintenance, overhaul, storage and cargo handling. Time estimated by the Authority to complete the project is seven years.

▶ **Parallel Runways**—Plans for the terminal, which will serve 35-40 percent of all air passengers in the New Jersey-New York region (where there are 13 million potential air travelers) include construction of an open-parallel, dual runway system. Approximate capacity under this system: 1000 plane movements a day, or 120 aircraft during a high peak hour.

Six runways, built in parallel pairs will, according to the Port Authority, permit "simultaneous landings and takeoffs without any danger of conflict with traffic pattern."

Runways will range in length from 6400-9000 ft. and will be capable of handling 125,000-150,000 lb. aircraft. Net result, of course, in addition to streamlining operation, will be an increase in flight revenues.

▶ **Non-Flight Revenue**—But non-flight revenues also will be given attention by the Port Authority.

Following the pattern set at La Guardia Field for tapping visitor and passenger revenue (AVIATION WEEK, Mar. 22), the Authority will give special consideration to facilities for this trade. Preliminary plans are under way for construction of an extensive two-level terminal, to contain shopping centers, recreation facilities and restaurants.

The Authority points out that at La Guardia, where special attention to restaurant facilities has been given, indications are that revenues from this source in 1948 will rise to $235,000. The 1946 figure was reported to be $112,000.

▶ **First Steps**—Test boring of soil last week was the first step taken by the Authority before embarking on the overall program. This will aid in determining drainage methods and proper locations for the various facilities. During the construction, service will continue at the field.

Other developments:

- The Authority has authorized purchase of automotive and other equipment for the field totaling $151,500. This is in addition to $114,000 worth of equipment on hand which was purchased for use at Floyd Bennett Field and which will be transferred to Newark.
- Former Army buildings at the field will be integrated with the overall plan. Within four to six months, construction will begin on general all-purpose hangars for the airlines.
- Ramp area adjacent to the terminal will be increased, to provide more plane space as well as for passenger comfort.

Addition of Newark Airport to the Port of New York Authority's chain of municipal airports (others are La Guardia Field and New York International Airport) was instigated by the Newark City Commissioners, who in 1945 requested the Authority to make a study of the steps necessary to develop the air terminal. In July, 1946, the proposal for financing, developing and operating Newark was submitted to the City of Newark, and on Oct. 22, 1947, the City and the Authority entered into a 50-year leasehold agreement. The agreement became effective Mar. 22, 1947.

IFALPA delegates from 16 nations meet in London to form the new organization.

Air Line Pilots Go International

New 16-nation organization formed to push aims for operating standards and achieve benefits for pilots.

An International Federation of Air Line Pilots Associations was formed last month at a conference in London attended by delegates from 16 nations.

Represented were pilots from Argentina, Australia, Belgium, Canada, Czechoslovakia, Denmark, Eire, France, New Zealand, Norway, Rhodesia, South Africa, Switzerland, The Netherlands, Great Britain and the United States. Spokesman for U. S. pilots was Howard B. Cox, American Airlines, who was the delegate of the Air Line Pilots Association (AFL).

▶ **Aims Listed**—Objectives of IFALPA: to establish methods of communication between the pilots' associations on matters of mutual interest; to insure that views of the various associations are made available to the appropriate international authority; and to establish a permanent organization through which pilot aims may be achieved. Discussions at London emphasized pilot pensions, seniority, hours of service, and minimum operating and weather standards.

The group agreed that the flight crew should not be subject to interference from ground sources. "Jurisdiction and command of a plane in flight should always remain in the hands of the pilot, and complete control of the plane should be in the cockpit," a resolution declared.

▶ **Weather Minimums**—It was decided that the country in which the airports are situated should, in conjunction with all interested parties and pilots' associations, be responsible for specifying weather minimums for each aid available at each field. The minimums so specified would be applicable to all operators.

When these minimums have been determined, it would be the responsibility of each operator to lay down its own minimums for observance by its pilots, but these company minimums would in no case be less than the established minimums of the particular airport. All operators would submit their minimums to the approved regulatory authority.

▶ **ICAO Participation** — IFALPA also agreed that a request should be made to the International Civil Aviation Organization for the right of representation at ICAO's meetings.

An interim memorandum of federation was signed by representatives of the pilots' associations at the London meeting, and arrangements made for a session in Paris next September. Rules and regulations for IFALPA may be adopted at that time. Meanwhile, an interim organization will headquarter in London.

Increased Airline Lift

U. S. certificated airlines now are able to make available to the military more than six times the emergency carrying capacity they offered at the beginning of World War II, according to the Air Transport Association.

In 1941, the scheduled airline fleet, both domestic and overseas, had an emergency military transport potential of 34,000,000 ton miles per month. Current potential is around 255,000,000 ton miles monthly, based on a 100 percent load factor and a 25 percent increase in the daily hours of plane utilization. Translated into passenger miles, the present potential is 1,825,000,000 per month.

Significance of the 632 percent increase in emergency carrying capacity of the U. S. airline fleet is heightened by the reduction of practically all other civil as well as military elements of national security and defense during the postwar period, ATA declared. Majority of the 340 airline planes in 1941 were DC-3s, while the current fleet includes such larger planes as the Constellation, DC-6, DC-4 and Martin 2-0-2.

TWA Views Future

TWA's top officials believe the air transport industry's worst breaks in the postwar period are past and that the future need not be black if the airlines and the government have learned the lessons of their mistakes.

Speaking in Baltimore late last month, TWA Board Chairman Warren Lee Pierson stated that "misfortunes and stumblings" of the last two years are at an end. He said the principal causes of the financial setbacks suffered by U. S. air carriers in the postwar period were spiraling costs, errors in management planning and mistakes on the part of regulating agencies and the makers of basic government policy.

Meanwhile, TWA President LaMotte T. Cohu, addressing the Society of Automotive Engineers in New York, agreed with Pierson on the causes of the industry's reverses. But he said the early months of this year indicate that "unless rapid solutions of underlying airline problems are found, the results for 1948 also may be discouraging."

Pan American Favored

Pan American Airways has been recommended for a new route between Boston and Bermuda in preference to Northeast Airlines and Colonial Airlines, which also applied for the link.

CAB Examiner William F. Cusick indicated Pan American can operate the Boston-Bermuda route more economically than either NEA or Colonial because the service can be more easily integrated with PAA's present operations. Pan American now flies between New York and Bermuda.

Cusick declared the granting of a Boston-Bermuda route to either Colonial or Northeast would not aid either carrier in achieving economic self-sufficiency. Colonial is now flying to Bermuda from New York and Washington.

DC-4s To Aerovias Guest

Aerovias Guest, S. A., certificated Mexican flag carrier, has added two DC-4s to its Mexico City-Madrid service, supplementing its present Constellation. The new equipment was obtained from United Air Lines.

Latin American Route Battle

PAA and Panagra appeal to Congress and CAB to block new competitive Braniff and C&S service to south.

Pan American Airways and Panagra are making last-ditch appeals to Congress and the Civil Aeronautics Board to block inauguration of new competitive South American services by Braniff Airways and Chicago & Southern Air Lines.

Braniff is pushing plans to inaugurate service from Houston to Lima, Peru, via Havana, Balboa and Guayaquil in June, with extensions to Sao Paulo and Rio de Janeiro, Brazil, slated shortly thereafter (AVIATION WEEK, Apr. 19). The company reports it already has invested over $4,000,000 in the projected South American services.

▶ **Caracas Run**—Chicago & Southern, which now operates from New Orleans as far as Havana, has announced intentions of activating its Latin American route to Caracas, Venezuela, in the near future (AVIATION WEEK, Apr. 12).

CAB late last week was scheduled to hold an oral argument on whether to institute immediate hearings on PAA and Panagra complaints against Braniff. Pan American claims it is in the public interest for the Board to suspend the proposed Latin American services of both Braniff and Chicago & Southern which were originally authorized in June, 1946, but never activated.

▶ **Letters to Congress**—Charging that Braniff's service would cost the taxpayers $3,000,000 annually, Harold J. Roig, Panagra president, sent letters to members of the Post Office subcommittee of the Senate Appropriations Committee requesting that funds for the operation be withheld. PAA President Juan Trippe followed suit, and in a letter to subcommittee members asked them, pending a thorough investigation, not to appropriate funds either for Chicago & Southern's routes south of Havana or for Braniff's new operations.

Following a "fact-finding session" on the Braniff situation with CAB Chairman Joseph O'Connell, Sen. Guy Cordon (R., Ore.), subcommittee chairman, told AVIATION WEEK that "no funds for Braniff mail payments are included in the regular 1949 fiscal year Post Office bill pending before the committee. The question as to whether payments should be made for the service is, therefore, not up for decision. We cannot write provisos pertaining to funds that have not even been appropriated."

▶ **Policy Stated**—The Post Office Department's lump-sum request for $26,583,000 for foreign airmail pay—trimmed to $19,500,000 by the House—includes allocations only for routes already in operation. Cordon and other senators indicated to AVIATION WEEK that in their judgment "it is not the province of the Appropriations Committees of Congress to decide the international air route systems of the United States by the granting and withholding of funds for airmail pay."

The appeals of Roig and Trippe were referred to the investigating subcommittee of Senate Expenditures in Executive Departments headed by Sen. Homer Ferguson (R., Mich.) for scrutiny in connection with its investigation of airline subsidization (AVIATION WEEK, Mar. 29).

▶ **Roig Position**—Pointing out that four years have elapsed since the Latin American route case came up in 1944, Roig, in his letter, declared that "radical changes have occurred in the South American air picture, in the character of Braniff's proposed operation, and in its cost to the government. The original application estimated the mail pay requirement at 4.26 cents a mile, or $123,587 annually," Roig declared.

"But," he continued, "in 1947 Braniff applied to CAB for a mail rate of $1.51 a plane mile and was awarded a temporary rate of 95 cents. At this rate, the cost to the government for the entire Braniff route would be about $3,000,000 per year."

▶ **PAA View** — Trippe estimated that the Chicago & Southern extension and the Braniff South American service will increase the government's mail pay bill by about $7,000,000 annually. The PAA president said he fears that "if the government's foreign mail pay budget is swollen by the addition of uneconomic and unjustified services supported by altogether disproportionate airmail payments, the burden may become so large as to prevent appropriations required for essential international air routes."

Summoned on short notice to testify on points raised by Roig and Trippe, CAB Chairman O'Connell tangled with Ferguson, a member of the Appropriations subcommittee, who promised that his Expenditures in Executive Departments subcommittee would ascertain whether there has been "neglect, or even corruption" in certificate awards by the Board. O'Connell reported it would be impossible for CAB to review the Latin American case immediately and stated it would be unfair to Braniff to withdraw its certificate at this late date.

▶ **House Probe** — Meanwhile, on the House side of the Capitol, Rep. Everett Dirksen (R., Ill.), a member of the House Appropriations Committee, has indicated he will demand a thorough scrutiny of allocations for Braniff's South American service when the Post Office comes before his group for supplemental funds.

In a letter to Senator Cordon, T. E. Braniff, president of Braniff Airways, said statements of Roig and Trippe "are inaccurate and misleading and are intended to gain your support and thwart U. S. international policy solely for the purpose of continuing the U. S. flag monopoly under which they have made millions of dollars in excess profits." Braniff protested that the Roig and Trippe estimates of the cost of Braniff service to the government were "grossly exaggerated and distorted," that suspension of the Braniff route would deprive the western part of the U. S. of air ties with South America, and would have a serious effect on relations with South American countries which have looked forward to Braniff service.

▶ **Attack on C&S**—In asking CAB for an investigation to determine whether Chicago & Southern's proposed service south of Havana is in the public interest, PAA attacked cost estimates originally made by C&S. PAA said Chicago & Southern was issued a certificate on the basis of assertions it would need mail pay of only 19 cents a plane mile to break even.

But in February, 1947, C&S estimated break-even mail pay needs for its entire Latin American system would be not less than $2.02 a plane mile. Soon afterwards, C&S was granted 95 cents a plane mile to open its New

New Planes for EAL

Eastern Air Lines will purchase two additional Constellations this year and plans to buy 20 new twin-engine aircraft in the near future.

The carrier has been conducting tests with a Martin 2-0-2 and a Convair-Liner. Only 2-0-2 available is the Martin test craft, while the Convair-Liner is part of American Airlines' consignment.

Capt. E. V. Rickenbacker, EAL president and general manager, said the Constellations will cost $2,000,000 and the twin-engine planes around $10,000,000. Delivery of the two new-type Constellations probably will be made next spring.

Orleans-Havana link, but CAB instituted a probe to determine whether the carrier's routes beyond Havana should be suspended.

▶ **New Offer**—Last month, CAB dismissed the C&S probe and offered the company $1.25 a plane mile mail pay both for the existing daily New Orleans-Havana flights and for a thrice weekly Houston-New Orleans-Havana-Caracas run. Pan American protested suspension of the investigation, claiming CAB offered no reason for its action.

PAA pointed out that it received only 6.6 cents a plane mile mail pay for its Latin American service in 1947 in contrast to Chicago & Southern's $1.25. Pan American added that the anticipated increase in air traffic to Latin America, which was counted on when C&S was awarded its certificate in 1946, has failed to develop.

From 64.2 percent in 1946, PAA's Latin American passenger load factor fell to 54.7 percent last year, and profits dropped to less than one percent of investment. Pan American declared foreign flag competition in the Caribbean area has surpassed expectations. Some of these so-called foreign flag carriers, PAA explained, are largely American-owned and managed and use U. S. flight equipment and crews.

Atlas to Sell NEA Stock

The Civil Aeronautics Board has ordered Atlas Corp. to dispose of all its shares of Northeast Airlines common and convertible preferred stock in excess of three percent of the outstanding shares of each class. The investment company was given 18 months to comply.

CAB's action was based on a finding that Atlas controls both Northeast and Consolidated Vultee Aircraft Corp. (AVIATION WEEK, Apr. 19). Convair manufactures the twin-engine Convair-Liner for which NEA may be a customer. The Board said control by Atlas of both Northeast and Convair is not consistent with the public interest.

Unless advised to the contrary by CAB, Atlas will be permitted to vote its stock at stockholders' meetings during the 18-month period. Pending disposition of its excess shares, Atlas will not be allowed more than two members on NEA's board of directors; and all new transactions between the investment company and Northeast must be submitted to CAB for approval.

PCA Changes Name

Stockholders of Pennsylvania-Central Airlines Corp. voted last month to change the carrier's name to Capital Airlines, Inc.

Russell B. Adams, newest CAB nominee.

New Face on CAB

Changes in Board membership indicate possible new line-up on issues.

Recent appointments to the Civil Aeronautics Board are giving that regulatory body not only a "new look" but a new outlook as well.

Coincident with President Truman's nomination of Russell B. Adams, director of CAB's Economic Bureau, to succeed Harllee Branch, two other new members of the Board participated in their first important opinion and gave indication that a new majority alignment with a less conservative philosophy has taken over. The touchstone decision was made in the airfreight rate case, with new Chairman Joseph J. O'Connell, jr., new member Harold A. Jones and Member Josh Lee concurring in a majority opinion favorable to the independent cargo lines (page 39).

▶ **Line-Up**—Under the recent three-man board, Vice Chairman Oswald Ryan and Member Branch formed a conservative majority, with Member Lee, an ardent expansionist, dissenting. Should Adams be confirmed by the Senate, many observers expect a line-up of O'Connell, Lee and Jones against Ryan and Adams on some basic issues.

Associated with the Civil Aeronautic Authority since July, 1939, Adams knows the CAB ropes thoroughly. He was assistant director of the Board's Economic Bureau from May, 1943, to July 31, 1945, when he became director. In addition, he has been chairman of the Air Coordinating Committee's Economic Division since its establishment in October, 1946, and was a technical advisor on the U. S. delegation to the International Civil Aviation Conference at Chicago in 1944.

▶ **Airlines Pleased**—Adams' nomination was received enthusiastically by spokesmen for the certificated airlines. Due to his long experience at the Board, he is well acquainted with practically all the top executives in the industry.

Meanwhile, Chairman O'Connell and Member Jones have made a favorable impression with their work on CAB thus far. Lacking the driving energy of his predecessor, James M. Landis, O'Connell has, nevertheless, shown himself to be sharp and imaginative. Already he is regarded as a better administrator than Landis and one who will make far fewer enemies and cause less friction.

▶ **Hard Worker**—Jones has proved to be particularly conscientious. In tackling his first major case, the freight rate proceeding, he reportedly read through all the briefs submitted. As a result, his questioning during oral argument was surprisingly incisive.

Departure of Branch on May 1 left CAB with only one member who has served since the Board's creation in 1938—Vice Chairman Ryan. While lacking a forceful personality of the Landis stripe, the new CAB, nevertheless, is regarded as an able one—completely receptive to new ideas—and, for the time being at least, remarkably independent of industry pressure.

Landis on Colonial Board

James M. Landis, former chairman of the Civil Aeronautics Board, has been elected a director of Colonial Airlines. The announcement was made following the carrier's annual stockholders' meeting.

Coincident with the Landis appointment, Colonial President Sigmund Janas reported traffic is holding up well and the company's cash position is adequate to take care of foreseeable working capital requirements in the immediate future. Janas said Colonial's loss in first quarter 1948 was $167,000, compared with $451,000 in the corresponding period last year.

New Safety Mark

Colonial Airlines has entered its 19th year without experiencing a fatality to a passenger or crew member. Since Apr. 18, 1930, the carrier has flown more than 192 million passenger miles from New York and Washington to Montreal and Ottawa and from New York and Washington to Bermuda.

CAB SCHEDULE

May 3—Oral argument in TWA-Hughes Tool Co. investigation (Docket 2796.)

May 14—Prehearing conference on applications for new Southern Transcontinental services. (Docket 1102, et al.)

June 14—Hearing on Capital Airlines (PCA) mail rate case. (Docket 484.)

More 1947 Pay Checks

Upward trend rejected in top salaries of eight additional airlines.

Additional disclosures of airline executives' salaries for 1947 continue to reflect a general upward trend.

Top compensation among officials of eight more carriers filing reports with CAB was paid to C. R. Smith, American Airlines board chairman. He received $60,000 last year compared to $50,000 in 1946.

▶**Same Salary**—Ralph S. Damon, AA president, had a salary of $40,000 in both 1946 and 1947. Highest 1947 compensation among nine carriers reporting earlier (AVIATION WEEK, Apr. 19) was that of Croil Hunter, Northwest Airlines president and general manager, who made $45,000 during the year.

TWA announced that Warren Lee Pierson, board chairman, and LaMotte T. Cohu, president, were each paid $32,386 last year. They both took office on Apr. 24, 1947. T. B. Wilson and Jack Frye, who resigned as board chairman and president of TWA early last year, received $39,333 and $43,310, respectively, in 1946.

▶**Rickenbacker Listed**—Eastern Air Lines President E. V. Rickenbacker earned $37,028 in 1947, a slight increase over his 1946 salary of $35,000. T. E. Braniff, Braniff Airways president, was paid $26,925 in 1947 against $24,000 in 1946; while National Airlines President G. T. Baker received $30,000 last year, up $10,000 over 1946.

Capital Airlines President J. H. Carmichael, who took over the position last Sept. 30, made $24,500 in 1947 against $28,666 the preceding year, when he was executive vice president. C. Bedell Monro, Carmichael's predecessor as president, received $32,610 in 1947 and $42,249 in 1946.

▶**NEA Executives**—George Gardner, new Northeast Airlines president, was paid $10.000 in 1947. Paul F. Collins, former NEA president and now board chairman, received $6.000 in 1947 against $16.320 in 1946. Caribbean-Atlantic Airlines President Dionisio Trigo made $10.000 last year.

Salaries of other airline executives in 1947, with 1946 payments in parentheses where available, are:

▶**American**—A. Cuthbert, vice president, $20,000 ($17,500); R. E. S. Deichler, vice president, $20,000 ($14,310); L. G. Fritz, vice president, $22,500 ($22,500); C. W. Jacob, vice president, $16,500 ($13,500); W. Littlewood vice president, $25,000 ($22,500); O. M. Mosier, vice president, $25,000 ($22,500); R. W. D. Smith, Jr., vice president, $17,500 ($17,155); W. J. Hogan, treasurer, $12,277; W. H. Miller, assistant vice president, $16,227 ($15,000); Carlene Roberts, assistant vice president, $10,000 ($8500); M. T. Stalter, assistant vice president, $10,466 ($9999); G. C. Van Nostrand, assistant vice president, $9300; P. G. Larie, comptroller and assistant treasurer, $13,600 ($12,434); V. J. Long, assistant treasurer and assistant secretary, $12,500 ($11,361); W. L. McMillan, assistant treasurer and assistant secretary, $10,000 ($9361); C. H. Kibbee, assistant treasurer, $13,200 ($11,900); A. A. Paradis, assistant secretary, $5550; R. L. Griffith, assistant secretary, $9295 ($5336); A. R. Bone, Jr., regional vice president $10,000 ($10,000); W. N. Bump, regional vice-president, $10 000 ($10,000); L. W. King, regional vice president, $10,000 ($10,000); M. D. Miller, regional vice president, $10,000 ($10,000); C. R. Speers, regional vice president, $10,000 ($10,388).

▶**Braniff**—C. G. Adams, secretary-treasurer, $16,433 ($15,000); R. C. Schrader, vice president, $16,697 ($15,000); Charles E. Beard, executive vice president, $21,671 ($15,000); Hal C. Thurman, general counsel, $16,005.

▶**Capital**—R. G. Lochiel, vice president and comptroller, $20,160 ($25 499); Robert J. Wilson, vice president, $17,280 ($21,249); F. M. Glass, vice president, $2187 ($10,931); Hayes Dever, secretary, $12,187 ($10,466); R. P. Wright, acting treasurer, $8500.

▶**Caribbean-Atlantic**—Benigno Trigo, vice president $2770; James R. Beverly, vice president, $729; Alphonso Miranda, secretary, $1250; Manuel Rivera, secretary, treasurer and traffic manager, $6000; Lawrence Lockhart, treasurer, $1500.

▶**Eastern**—Paul H. Brattain, first vice president, $24,028 ($20,000); S. L. Shannon, second vice president, $21,313 ($17,500); L. P. Arnold, vice president, $15,407 ($12,000); M. M. Frost, vice president, $20,000 ($17,500); S. deJ. Osborne, vice president, $20,373 ($21,250); T. F. Armstrong, secretary and treasurer, $16,193 ($12,000); J. W. Moore, assistant secretary and assistant treasurer, $10,636 ($9000).

▶**National**—J. C. Brawner, treasurer, $10,000 ($8400); H. C. Dobbs, vice president—traffic, $13,999 ($10,000); R. P. Foreman, secretary, $9000 ($7200); J. D. Crane, vice president—maintenance, $10,800 ($10,800); E. J. Kershaw, vice president—operations, $15,124; F. E. Howe, assistant secretary-treasurer, $7200 ($5750); T. A. Prevost assistant vice president, $8124 ($6405); J. A. Thomas, director, $7500.

▶**Northeast**—Milton H. Anderson, vice president, $15,000 ($15,228); Leland W. Miller, vice president and treasurer, $7776; H. LeRoy Swimm, treasurer, $8000 ($11,666).

▶**TWA**—John A. Collings, vice president—operations, $25,491 ($21,368); Albert V. Leslie, vice-president and treasure, $5500; Otis F. Bryan, vice president, $20,669 ($19,470); E. O. Cocke, vice president—traffic, $16,735 ($13,000); R. H. Biron, vice president—industrial relations, $6000; Dale Armstrong, vice president—public relations, $5370; C. E. Fleming, vice president—regulatory proceedings, $13,160 ($12,301); G. H. Clay, secretary $7728; Leo R. Gilleran, comptroller, $12,166.

Aerocar To Wind Tunnel

A model of the Aerocar, a combination automobile and airplane, has undergone its first tests in the wind tunnel of the University of Washington at Seattle.

The model was designed by Moulton B. Taylor, president and general manager of Aerocar, Inc., of Longview, Wash., and Arthur Robinson, director of the firm's aerodynamics department.

The Aerocar is expected to have a cruising speed of 100 mph. in the air and up to 60 mph. on the ground. The wings fold back along the fuselage, with the conversion operation performed by turning a small hand crank which moves the wings into position.

The craft is designed to carry two passengers while in flight and three on the ground, with the same controls for each operation. Wings and tail assembly are removable and the propeller, mounted on the rear of the fuselage, also can be removed if desired.

Taylor estimates retail cost of the Aerocar will be about $3,500. Production will begin after construction of a final trial model.

FIDO for Los Angeles Planned by Airlines

Presidents and representatives of five major airlines, meeting in Los Angeles, have ratified plans for an $861,000 FIDO installation at Los Angeles Air Terminal.

Two bids for the project have been received; one under and one above the projected cost. Bechtel Corp. placed a bid of $843,656.13. Office Construction Co. bid $1,074,565.

The Los Angeles conference makes possible immediate awarding of a contract by the Los Angeles Airport Commission following approval of plans by Civil Aeronautics Administration, which will put up 54 percent of the cost to the 46 percent sponsorship of the City of Los Angeles.

Airlines have agreed to amortize the city's share of the cost over a period of five years, and to pay operating and maintenance costs of the system.

Col. Clarence M. Young, Los Angeles city director of airports, believes the FIDO installation can be completed within seven months after CAA approval is gained.

IATA to Publish Tariffs

The International Air Transport Association will publish a complete series of world-wide tariffs covering the services of all IATA member airlines. Plans have been approved for compilation of a universal rules tariff for international airlines and a joint tariff for North Atlantic fares. These two volumes will appear this year.

Six airlines have applied for membership to IATA. They are: Hellenic Airlines S. A., Athens; Air India International, Bombay; Aerovias Guest, Mexico City; Luxembourg Airlines, Luxembourg; Sociedad Mixta Zonas Oeste y Norte de Aerolineas Argentinas, Buenos Aires; and Skyways (East Africa), Ltd.

Should all six be accepted, total IATA membership will rise to 70 companies, flying the flags of 45 different countries.

Liberia to Have Airline

Liberian International Airways will begin operations June 1, covering 2800 miles along the West African coast. The carrier will operate DC-3s and is part of a developmental program undertaken by The Liberia Co. The airline was formed by an independent American group, but is 25 percent owned by the Liberian government.

The Liberian Foundation also has an interest in the airline.

Passengers and freight will connect with other international airlines at Dakar and Leopoldville.

SHORTLINES

▶**Aerovias Sud Americana** – Holds a five-year contract with Willys Distributors, S. A., for movement of jeeps, station wagons, trucks, farm implements, parts and accessories to Latin America. Contract sets a minimum of 600,000 lb. per month for the consignee. Based at St. Petersburg, Fla., ASA uses C-46s for its cargo operations and recently asked CAB for a certificate.

▶**American**–Has declared the regular 87½ cents a share quarterly dividend on its $3.50 cumulative convertible preferred stock, payable June 1 to stockholders of record May 17.

▶**British Commonwealth Pacific Airlines**–Was slated to inaugurate service from Australia and New Zealand to San Francisco and Vancouver, Canada, late last month. Using DC-4s, BCPA will operate three times fortnightly from Sydney, Australia, with one additional flight each fortnight originating in Auckland, New Zealand.

▶**Capital**–By June 1 expects to have all of its 59-passenger DC-4s converted to 50-passenger craft. Ten of the carrier's fleet have been converted already. . . . All the company's planes are now equipped with terrain clearance indicators. . . . J. W. Carmichael was reelected president at the annual directors' meeting. Other officers also were renamed.

▶**KLM**–Plans to inaugurate a twice-weekly freight service between New York and Amsterdam on May 10 with two DC-4s. . . . Amsterdam-Teheran operations have been started with one of the carrier's new DC-6s.

▶**Northwest** – CAB hearing on the crash of a chartered NWA DC-4 into Mount Sanford, Alaska, last March failed to produce new clues on the cause of the accident. Wreckage of the craft, bound from Shanghai to New York, cannot be reached. . . . NWA expects to treble cargo traffic between Japan and the U. S. in the next four months as a result of recent State Department action in lowering tourist and trade barriers to Japan.

▶**Scandinavian Airlines System**–Has reduced cargo rates between the U. S. and Europe.

▶**Southwest**–Carried 4660 passengers in February against 2165 in the same month last year.

▶**TWA**–Late last month was slated to inaugurate service to Santa Fe, N. M.; Baltimore, Md.; Worcester, Mass., and Scranton and Wilkes-Barre, Pa. . . . Company flew 2,034,722 ton miles of freight in first quarter of 1948 against 804,343 in the same period last year.

▶**United**–Officers and directors were reelected at the company's annual meeting. Stockholders voted to permit an increase from 94,968 shares to 300,000 shares in UAL's authorized cumulative preferred stock and from 2,500,000 to 5,000,000 shares in the company's authorized common stock.

▶**Western** – Company is negotiating with the Reconstruction Finance Corp. for a $2,000,000 loan to complete financing of 10 Convair-Liners. The proposed load would be a continuation of the present RFC financing program, which has extended Western a $4,500,000 line of credit, $3,800,000 of which already has been used by the company. First of the Convair-Liners is expected to be delivered within 30 days. . . . All officers and directors of WAL were re-elected at the recent annual stockholders' meeting. . . . Company expects a mail pay increase within the next three months.

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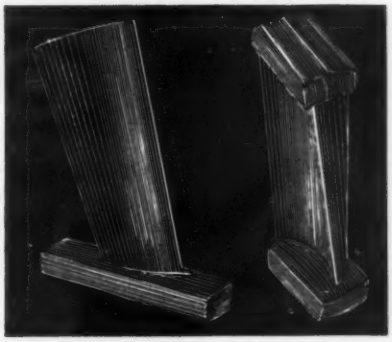

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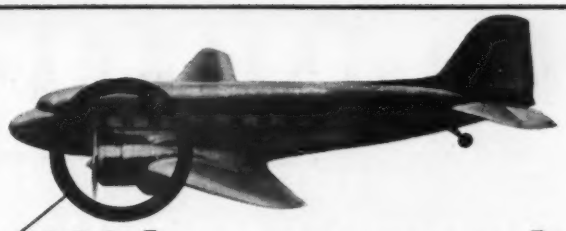

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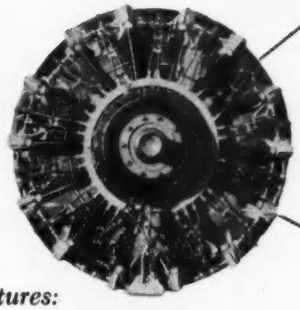

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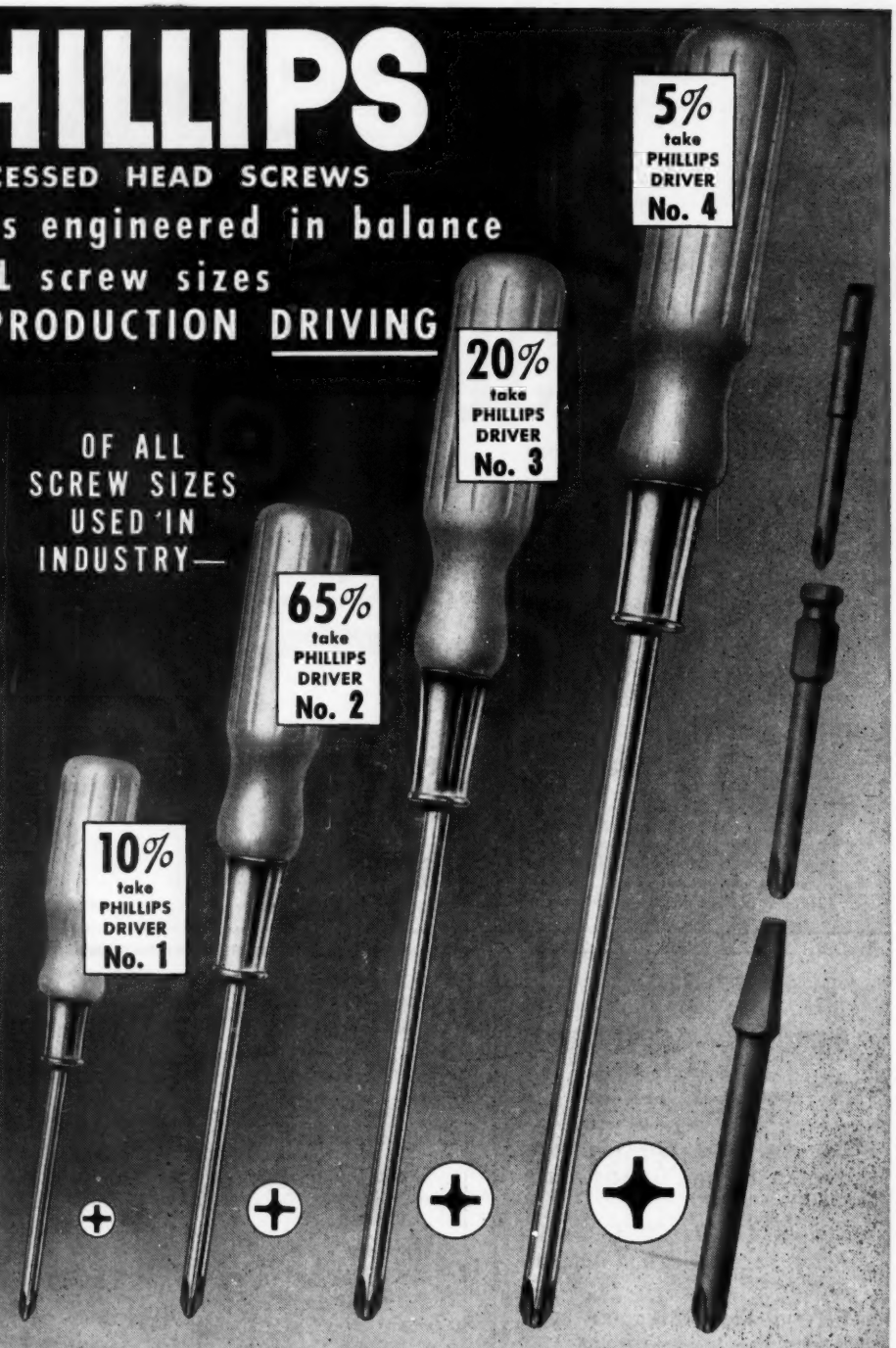

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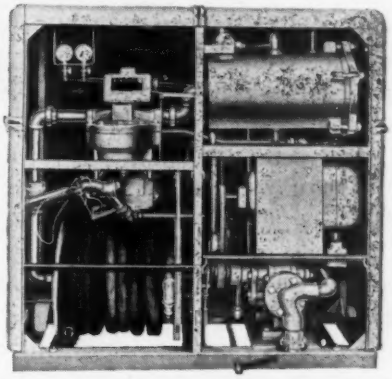

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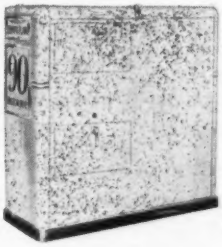

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EDITORIAL

Expansible Industry or Mothball Fleet?

In considering merits of the air power controversy which has been raging on Capitol Hill, there are two principal yardsticks to measure the effectiveness of various measures proposed.

One is the size and quality of the air forces in being.

The other is the size and quality of the aircraft manufacturing industry to sustain the air forces in the field.

Neither can be isolated from the other. Together they are the basic ingredients of airpower and the keystone in the national defense structure.

The Air Force has consistently maintained that its minimum peacetime numerical requirements include a 70-Group regular air force of 6689 first line combat planes backed by an 8100-plane force of reserves, national guard units and storage pools. Avoiding technical obsolesence is insured by an annual procurement rate of 3200 new aircraft, which would provide a new complement of planes every five years.

Unfortunately, only the aggressor can plan the starting date of a war. So it is impossible for us to avoid risk in deciding now whether to build more B-50's during the next two years or to gamble on licking the range problem in jet planes during the next five years, and concentrate our procurement guns on that objective.

We must keep building an adequate force of the best planes currently available. It is admittedly an expensive process but it is the simple cost of national life insurance. Any other course is openly courting disaster.

In the arguments between the Truman administration and the Congressional air power advocates this more obvious yardstick has frequently been applied. We have heard less of the second important requirement—industrial capacity.

It is in this respect that the Truman administration's proposals have most consistently ignored realities. Last year it was the President himself who slashed military air power requests by more than 50 percent.

Now Mr. Forrestal's latest compromise proposal is to allow the Air Force to build up to 66 Groups. On the surface this seems an attractive offer, probably not far enough short of the 70-Group goal to be worth arguing about.

However, Forrestal proposes to accomplish this build-up without any additional procurement funds over those he had previously recommended. It would be done by taking some 300 odd B-29's out of storage and reconditioning them for active service.

Congressional critics of the Forrestal proposal have accused him of offering a mothball air force, and in a sense they are right. For building up numerically acceptable quantities of aircraft is meaningless unless the proper industrial base is provided to support a continual production of technically modern aircraft during peace-time and to assure rapid expansion to mass production in war.

All three groups that have explored this problem for the government during the past year—the Air Coordinating Committee, the Finletter Commission and the Congressional Air Policy Board—have agreed on the necessity for this industrial base. Yet the Truman-Forrestal defense proposals continually ignore it by attempting, first, to ram through Congress an omnibus aircraft procurement bill far short of the real requirements, and then by proposing to substitute a fleet of bombers fresh from mothballs instead of the production line.

The industrial requirements of airpower have been clearly stated—perhaps most specifically by the Air Coordinating Committee, which called for an annual production rate of 3000 planes of 30,000,000 airframe lb. as the minimum peacetime floor for the aircraft industry, and an annual production of 5700 planes with airframe weight of 60,000,000 lb. for periods of international emergency when the prospect of war looms.

The Truman administration has been expending tremendous effort to impress on the citizens the dangers in the present international situation and yet this same administration actively opposes any attempts to boost our air power to the minimum peacetime requirements set by its own expert air advisers.

The Air Coordinating Committee will shortly publish a new and technically detailed study on expansibility of the aircraft industry and the peacetime requirements for its healthy survival. It is tragic that this study is not available now while the fate of airpower is being determined, so that the neglected issue of the industrial requirements of adequate air power can be presented squarely to the men who will render that decision.

But it is inconceivable that the Senate will be deceived by the administration's belated offer of a large Air Force manned by obsolete planes. We hope they stand firm with their colleagues of the House who, by a rousing 343 to 3 vote, endorsed the principle that air power is now the key to our national defense, and that it must rest on the twin foundations of a relatively small but well trained and equipped regular air force backed by a healthy and technically sound aircraft industry.

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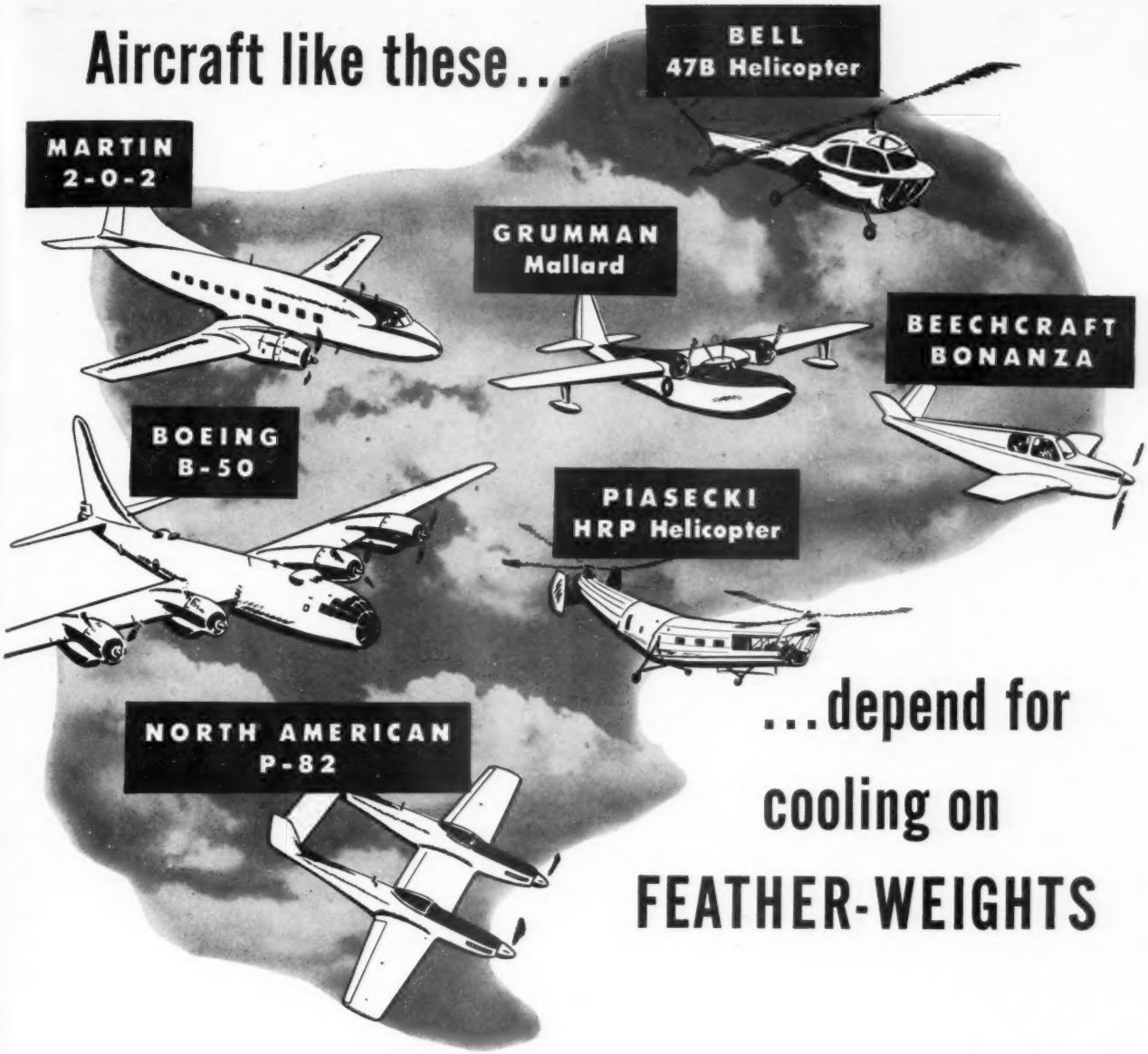

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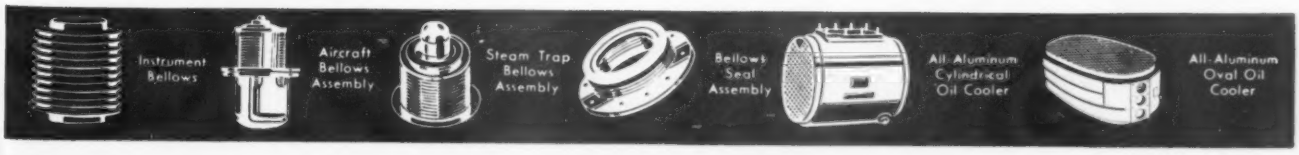

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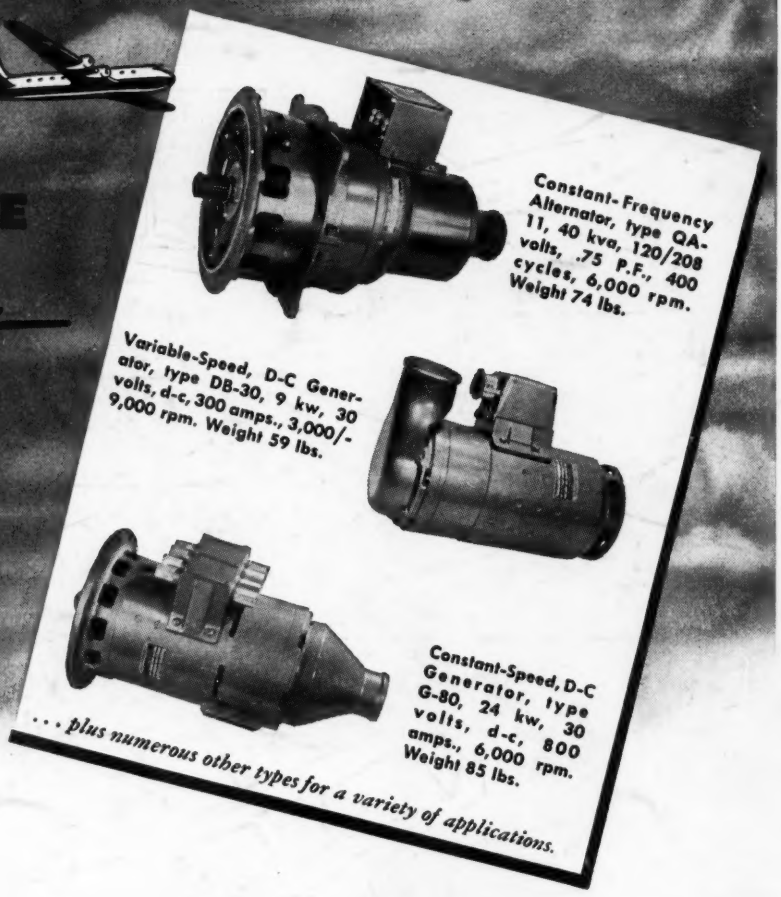
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